Smithsonian

SEPTEMBER 2000

Ballet on the Rocks

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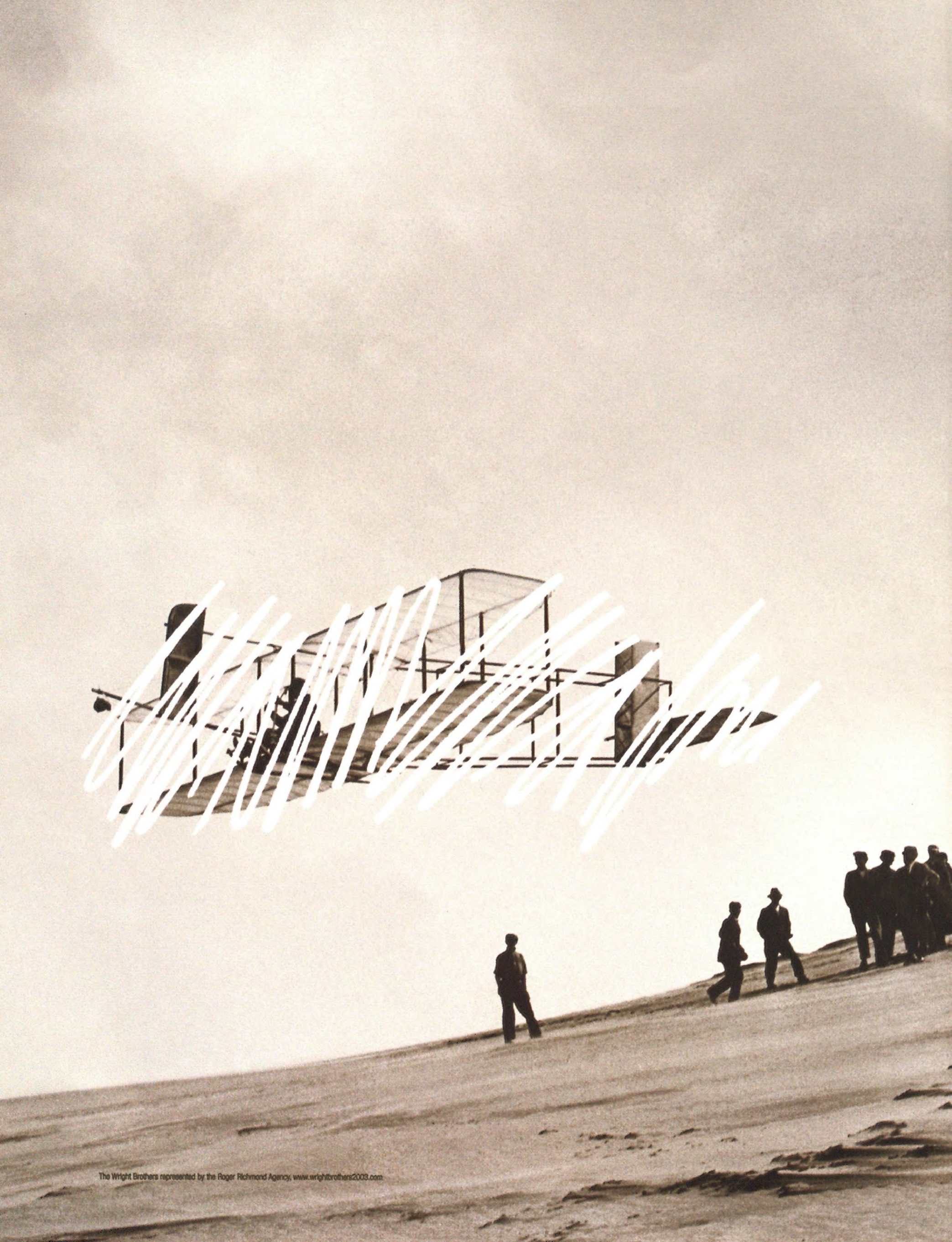

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SEPTEMBER 2000 ♜ VOLUME 31, NUMBER 6

Cover Blending art and sport, Project Bandaloop members perform a move called the "Peregrine," in the opening sequence of *Luminescent Flights*, a work commissioned by the Wolf Trap Foundation for the Performing Arts. Suspended some 2,500 feet above the Yosemite valley floor are, from left to right, Amelia Rudolph, the troupe's founder and artistic director, and dancers Peter Mayfield, Heather Baer and Chris Clay.
PHOTOGRAPH BY PETER MCBRIDE

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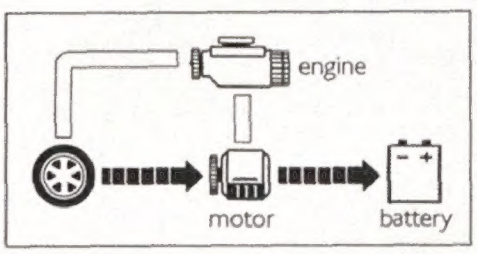

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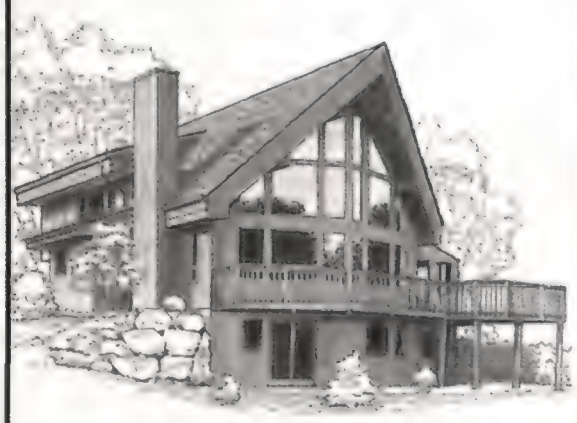

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A Monumental Responsibility

A NOTE FROM THE SECRETARY

THE MUSEUMS OF THE SMITHSONIAN INSTITUTION ARE among the grandest buildings in Washington, but their grandeur is vulnerable to age, use, and the elements, and it needs constant tending. The same is true of the other buildings and monuments that stand along with our museums beside the great open space of the National Mall. All the capital's monuments should scrupulously reflect the shining ideals of the nation, and they, too, should shine. They are the physical manifestation of our shared sense of national identity, and they are to be cherished and protected for that reason.

The Smithsonian buildings are at home in the company of those monuments, for the Institution is our national center of cultural heritage—the repository of the creativity, the courage, the aspirations and the innovative spirit of the American people. Its collections hold a vast portion of the material record of democratic America. The most sophisticated virtual representation on a screen cannot match the experience of standing in a Smithsonian museum just a few feet away from the Star-Spangled Banner, the lap desk on which Jefferson wrote the Declaration of Independence, the hat Lincoln wore the night he was shot, the Wright brothers' *Flyer* or the *Spirit of St. Louis*.

Moisture damage threatens the Castle's walls and windows.

Those icons, and countless others in our museums, have an aura that erases time and distance and restores to life key moments in the nation's history. And yet, the experience of viewing the objects is compromised by the physical deterioration of the buildings, which are becoming unworthy of the treasures they contain.

We can hide the peeling paint and leak-stained ceilings behind curtains and plastic sheets, ask visitors to indulge ill-lit exhibition spaces, and patch up worn-out machinery with improvised parts (because the originals are no longer made). But the overwhelming reality cannot be concealed: the buildings are too shabby, and the shabbiness is no way to represent America.

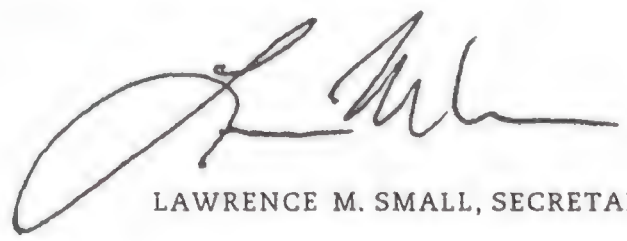
The great enemy of our buildings is nothing more—and nothing less—than time. The cornerstone of the Smithsonian Castle was laid in May 1847, and the building was completed eight years later. There's hardly been a time since when some part of it has not been undergoing repair or reconstruction or renovation. The problems with moisture have reached critical level, and the consequences, such as moldering plaster in the walls, are all too visible.

The Arts and Industries Building, next to the Castle, opened in 1881, and its roof began to leak shortly thereafter. The Museum of Natural History, which opened in 1910, is approaching the century mark. Construction on the Patent Office Building, in which we house our museum of American art and the National Portrait Gallery several blocks away from the Mall, began in 1836.

The age of our buildings is reason enough for concern, but there's a significant additional stress on them. They exist to be visited and used, and they have been spectacularly successful at attracting visitors. All that traffic takes a toll and leaves its wearing traces. So what time doesn't do to the museums, popularity will. And thank goodness for that. If we have to be challenged, let it be by success.

The Smithsonian has hesitated in the past to confront the full scale of its repair and renovation needs. It has tried instead to make do. But it will be undone by just making do, and the American people will be the losers. So we shall face our monumental problem head-on. The start of a new century seems the right moment to give our museums new life, commensurate with their history and purpose. We have drawn up a plan to transform the physical environment of the Institution over the coming decade, and we shall seek support for the plan from Congress, the new administration and the private sector.

The Smithsonian holds its collections on behalf of the nation. To make our museums worthy of the riches they contain is to keep proper faith with America. And that we intend to do, by turning the tables on age and restoring the buildings to health.



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WILDLAND FIREFIGHTERS

AFTER READING IN YOUR JULY 2000 issue "Battling the Orange Monster" by Edwin Kiester, Jr., I had to sit back for a spell and catch my breath. In 1977 I was employed by the California Department of Forestry (CDF) in Colfax. I had one day off each week and drove home to Sacramento and then back the next day to Colfax. I'd put on my yellow fire-fighting uniform and maintain the fire vehicles. We were constantly training and doing trenches at rapid speed. Or being awakened at 3 A.M. and traipsing to parts of the forest unknown, to put out a fire on a hot, breezy night.

One day as we headed up to battle a forest fire—an orange monster—I got my hair singed, and while feeling the heat against my face, the captain was yelling, "Spot fire! Get in the roots of the fire, Roberts!" I knew then that I wasn't ready to be a firefighter.

The firefighters who stick with this tough-as-nails job are dedicated men and women. They constantly listen to the radios for the next fire; they train hard; they show their burn scars as if they were medals of honor. They are heroes, and I am honored to have experienced their hardships on those fire lines. I now have a cushy office job, but I watch them, admiringly, on the news.

Paul Dale Roberts
Elk Grove, California

POINTS OF INTEREST

AT THE END OF HER COLUMN, "NO Return Address," Sue Allison talked about the mystery of two hand-written letters. I am the "one Lee Sandro" who tossed a letter in a bottle off the coast of New Jersey in September 1997 that was found two years later by a "Dreamer in Florida."

By the way, the "childish handwriting" is that of a then-35-year-old man. Penmanship was not my strong subject in school.

Lee Wayne Sandro
Red Bank, New Jersey

MY THANKS TO ALL OF THE SMITHSONIAN readers who have taken the time to do their own detective work, trying to track down the family of W.C.G. McLeod (1891-1977). Their information has been most helpful, and we are on the last leg of verifying the identity of Mr. McLeod so we can give the cremains of "Uncle George" the final resting place he deserves.

Valerie Raynes, Manager
USPS Mail Recovery Center
St. Paul, Minnesota

NIGHTJARS

I WAS SO PLEASED TO ACTUALLY SEE what a chuck-will's-widow looks like in William Burt's article "Nightjars Are Everywhere, But Just Try Finding One." When I was living in Vero Beach, Florida, every spring at night and early morning a chuck relentlessly sang in a live oak right outside my window. I threw tennis balls at the tree but never saw the bird, hit him or stopped that incessant chirp.

Valerie Salembier
New Canaan, Connecticut

HOLISTIC FARMER JOEL SALATIN

THE ARTICLE "DOWN ON THIS FARM the Times They Are A-changin'" by Virginia Shepherd was interesting. Joel Salatin's Polyface Farm operation reinforces what is missing in our economy today: if you are passionate about your vocation, regardless of what it is, you have staying power.

On a related point, expansion obligates the farmer to extract greater income from his or her livelihood. If the owners of small and medium family farms can gird themselves against the onslaught of materialism, that is, saddling themselves with overly ambitious acquisition of costly equipment and machinery, they will find themselves enjoying life.

James M. Georges, Sr.
Highland, Illinois

I WAS HORRIFIED TO SEE THE PICture of the scared rabbit running for its life, away from Daniel Salatin and a spot on a restaurant's menu.

Douglas P. Walrath
St. Augustine Beach, Florida

THE OBJECT AT HAND

I FEAR THAT IN HIS COLUMN "OUR Flag Was Still There," Edwards Park, who undoubtedly is also familiar with the problem of misspelled first names, has fallen victim to an editorial typo. Although she was both pretty and popular, First Lady Dolley Madison was clearly no mere dolly.

Eve Zibart
Washington, D.C.

THE PATRIOT

WHERE IS THE PAINTING *VILLAGE Tavern*? Lucinda Moore, in "Capturing America's Fight for Freedom," wrote that *The Patriot* set decorator, Victor Zolfo, said he "stole liberally" from it.

Ruth Geer
Charleston, South Carolina

The Toledo Museum of Art owns *Village Tavern* (detail, below), which was painted in 1813-14 by American artist John Lewis Krimmel (1786-1821). Ed.

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POINTS OF INTEREST

"The Jitterbug Met R&B"

AND THE SHAG, A STYLISH SOUTHERN DANCE, WAS BORN AND REBORN ALONG THE CAROLINA COAST

BY T. EDWARD NICKENS

WITH MY BACK TO A HOT PINK souvenir shop hawking body piercing, Free Hermit Crabs and 59-cent saltwater taffy, I'd have no trouble bouncing a rock off the doors of a half-dozen beach music clubs. Ducks and Ducks Too, OD Café, OD Arcade and Lounge, and Pirates Cove would be a cinch. Fat Harold's—now Fat Harold's would take some doing. Maybe two stones' throws, tops.

There's hardly room for a windup, though. It's 38 degrees in the January shade, but still some 5,000 people have jammed into the few core blocks of North Myrtle Beach, South Carolina, known as Ocean Drive, or OD. It's a popular vacation spot, chockablock with beachwear shops, nothing-fancy hotels and weathered houses. But to many folks who grew up in this neck of the South, this is hallowed ground. Born-again country, of sorts. OD is where the shag came back to life.

Never mind the recent Mike Myers movie by a similar name. Down here, the shag is a dance, a stylish, holding hands sort of dance, as old-time Southern as pouring salted peanuts into a sweating bottle of "co-cola." It evolved during the 1940s, at ocean-front pavilions from Virginia Beach to Savannah, Georgia. There, ducktailed hipsters in peg-legged pants shagged to throbbing jukeboxes, affecting an aloof style whose highest expression was cool. From the beach, the shag migrated inland and found fertile

Shagging at a beach-music joint, two devotees demonstrate fancy footwork.

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ground in country club and cotton crossroads alike. For years the shag was a fixture of Southern culture. You shagged at sock hops, debutante parties, fraternity dances. You shagged in abandoned parking lots and at the end of dead-end roads. And during the summers, you made a pilgrimage to the ramshackle bars and jukebox dives that dotted the Southern shore.

For a few dark decades, the shag was pushed into the margins of Southern life. Elvis and the Beatles put a new twist on the dance floor, and in 1954 Hurricane Hazel turned much of the shagging coast to rubble. After a time, too, the architects of shag were, well, architects. And bosses and employees, mamas and daddies. The dance was still a staple of country club weekends, but shagging as a central focus of life was history.

Then, in 1980, an ex-lifeguard named Gene Laughter planned a reunion of beach bums at OD. A few hundred people were expected; several thousand showed up. The notion of a formal shagging organization was planted, and the shag renaissance commenced. The Society of Stranders (S.O.S.), named after South Carolina's 60-mile-long Grand Strand, now hosts two massive shag festivals each year, the Spring Safari and the Fall Migration. At each, upward of 12,000 celebrants clog OD.

Those parties are open to every gawker and sunburned golfer who drops by. January's Mid-Winter Classic is different. This is worship. To attend Mid-Winter, you must be a card-carrying member of any of nearly 100 regional shag clubs. These are people who raced hot rods to the beach, lying to their parents about where they were staying. Who remember The Pad on OD, and White Lake's notorious Crystal Club, where feet and fists swung with equal fervor, and the sweaty "jump joints" of Carolina Beach. Who tell me, with a straight face, that shagging today still can be—if you let it, you know—a way of life.

Celebrants in the parade at North Myrtle Beach's annual spring shag festival escort custom-made mannequins that enable them to "dance" while they march.

Now it's two o'clock on a Friday afternoon, and Fat Harold's Beach Club is packed to the gills. I squeeze through the door and step into the thrumming beat of Vance Kelly's "Wall to Wall." Fat Harold's is a low-slung building, ringed with dozens of round wooden platters bearing the names of shag clubs. In one corner, barely lit by the red glow of an "Exit" sign, is a pair from north of the Mason-Dixon line: the Cincinnati Bop Club and the Southern New England Shag Club. I find a few open inches along a long wooden rail and watch.

The shagger's fundamental move is "the basic," an eight-count step in which partners move into, then away from, one another. From there it's all Southern-fried jitterbug, highly improvisational, festooned on the fly with spins, fancy footwork and not-so-subtle brushes of hip and chest. Without missing a beat, men mop sweaty brows with white handkerchiefs pulled from the pockets of relaxed-fit jeans. The best seem to glide through the air from the waist up, but their feet are a blur. Shaggers can dance all night in the space of a hula hoop.

I strike up a conversation with a perky, mid-50s blonde named Aggie Ervin, who insists that she's no shag proselytizer. Just here to have a good time. But her friend, she tells me, with arched brows, is serious about the shag. "She won't dance with a guy," she says, "'til she sees him dance with somebody else."

At her elbow, that friend submits a mild defense. "You at least ought to be able to dance and smile," fusses Dianne Hines. "If you're not smiling, you're counting your steps."

It's a warning shot over my dusty Weejuns. Since college, my connection to the shag has been relegated to

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SUBARU

The Beauty of All-Wheel Drive.

At a club in North Myrtle Beach, a "hall of fame" commemorates the exploits of various shaggers over the years. For them, the dance was a way of life.

the occasional wedding reception. I consider the dance floor, then hear my subconscious: "One-two-three, one-two-three, back, back . . . " Not quite yet.

My alma mater was a sanctuary during the shag's dark ages and became a full-blown temple during the renaissance. Still, when I arrived at the University of North Carolina at Chapel Hill in 1979, I didn't know shag from Berber. I learned what was dubbed the "college shag," a version simplified, I always figured, to keep keg beer inside the dancer's ever-present cup. For years a pained expression crossed my mother-in-law's face each time we shagged. She moved to the classic shag of the 1950s and considered my brutish translation the tango of the philistines.

I'm on my way out of Fat Harold's when I bump into one of the saviors of the shag. I'd seen Phil Sawyer's photograph in the book *Shag: The Legendary Dance of the South*. Phil was at that first beach bum reunion and has served as S.O.S. president for 11 years. He's ruddy-faced and tall, chatty as we tuck ourselves into a corner of the white cinder-block OD Arcade and Lounge. I offer to buy him a cup of coffee, and he checks his watch before ordering a Budweiser.

When Phil was 14 years old, he and his pals danced "a little country jitterbug" in OD's long-gone Roberts Pavilion as the beach bums threw pennies at their feet. "Back then you could buy a hot dog for a dime," Sawyer grins, "so we were scoopin' up the pennies. We were too country to know they were making fun of us."

It was the 1940s, and a cultural cross-fertilization was under way on the Carolina coast. The jukebox company that serviced Atlantic Beach, a predominantly black resort just down Ocean Boulevard, lifted from the Wurlitzers the "race music" of the 1940s—it's called rhythm and blues and soul today—and spun Bull Moose Jackson, Billy Ward and The Dominoes, and LaVern Baker back in OD. "You could hear that stuff only when you were at the beach and away from your parents," Phil explains, and that's how it came to be called beach music. Similar exchanges of vinyl culture occurred up and down the coast. "The jitterbug," Phil says, "met R&B." The beach bums slowed the tempo and eliminated the jitterbug's wilder moves. They created the shag.

The next night I hit the beach with a dance partner who promises not to snicker at my steps. My wife, Julie, and I knock around the dance floors at most of OD's lounges, but we're drawn mostly to Ducks. It's a converted storefront, its walls heavy with mounted waterfowl draped with ragged, smoke-tinged feathers. I know of no other place where you can dance under a model train pulling the cremated remains of a pair of shagging stalwarts. The tunes at Ducks tend toward slower, "smoothies music," and the better dancers are there, including a few West Coast swing dancers who discovered the shag a few years back.

We're there when The Clovers' "Nip Sip" throbs out of the speakers. It's a shag anthem with an infectious backbeat that pulls at my feet like an outgoing tide. "C'mon," Julie's eyes implore, and for the last time that night I head for the floor.

My steps are still a bit rusty, but all night long they've been coming back, just like everyone said they would. Julie's moves are as smooth as her mother's, and she sings along—"Goin' to the party, to get with the bunch/ Got a dollar for my nippin' and a dime for my lunch"—and tells me about learning to shag by dancing with her daddy, in stocking feet, in their living room at home. I mop sweat from my brow with the cuff of my shirt and think back to those days when I didn't wear relaxed-fit jeans. After a few more songs, I even forget to count my steps.

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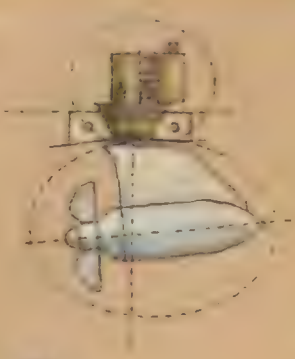

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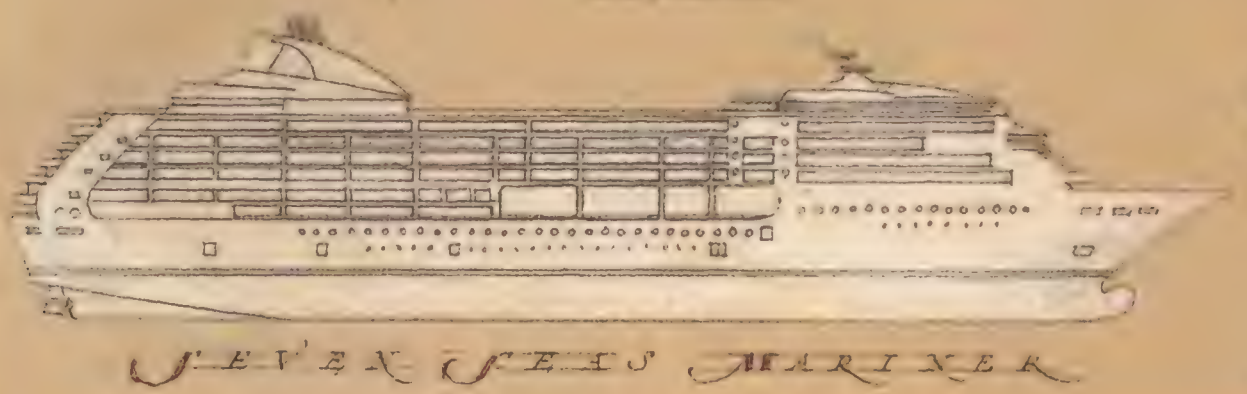

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A Storied Gallery

WITH ITS COLORFUL HISTORY AND A TOUCH OF WHIMSY, THE RENWICK IS A SINGULAR EXPERIENCE

BY MICHAEL KERNAN

Paintings, poufs and a six-month refurbishment have helped re-create the 19th-century elegance of the Renwick Gallery's Grand Salon.

REGIS LEFEBURE

As you walk up Pennsylvania Avenue a block from the White House, surrounded—but by no means engulfed—by those huge glass-and-stone boxes in which Washington does its business, there is an ornate brick-and-sandstone building in French Second Empire style. With its pilasters and medallions, its arches and mansard roof, its decorative wreaths and railings and other embellishments, the Renwick Gallery is an architectural pastiche, but a delightful one.

I had thought I was rediscovering one of Washington's secrets when I ventured into the gallery, which specializes in American crafts and decorative arts—but no.

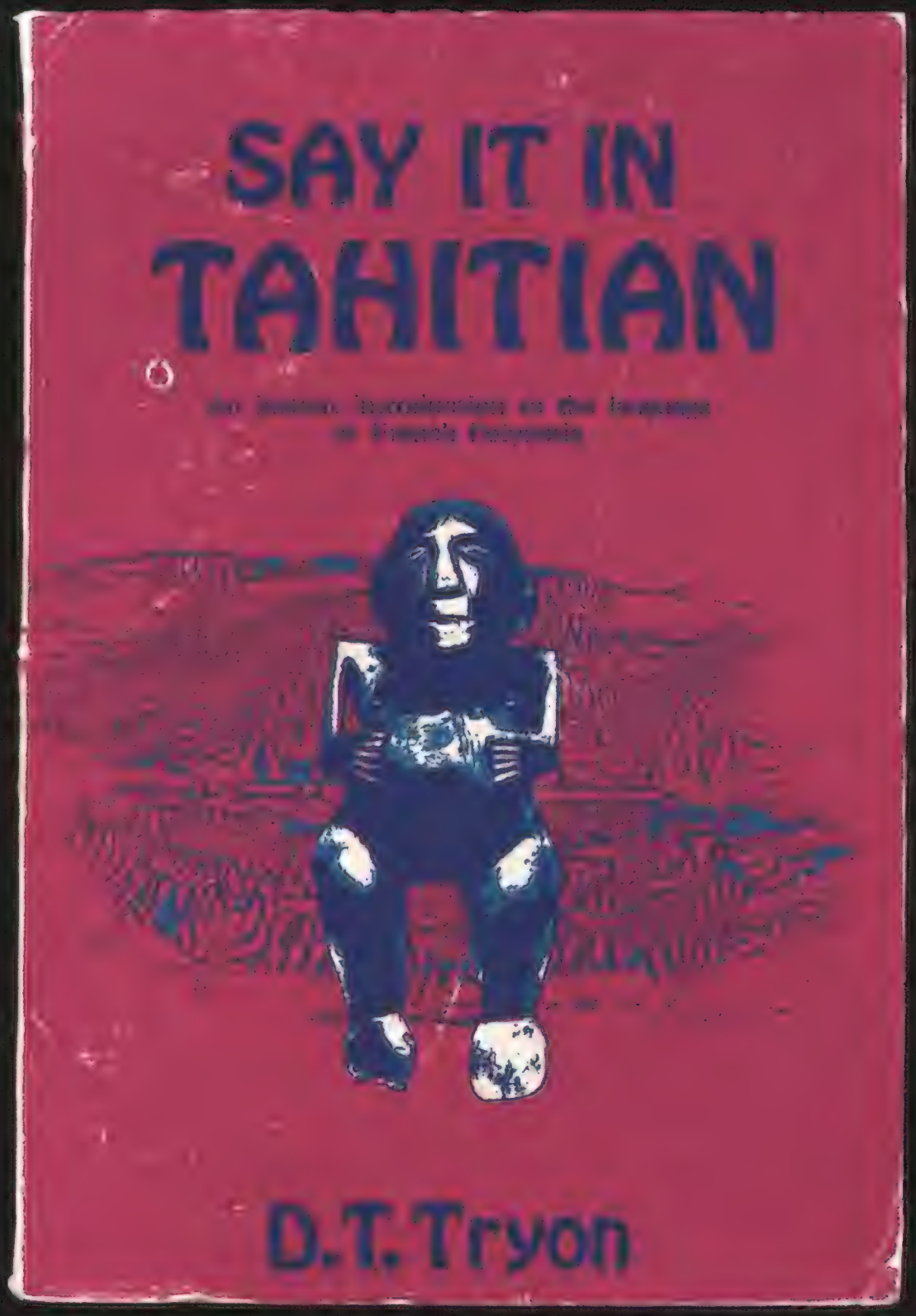
"Admittedly, we're off the Mall," said Ellen Myette, the operations administrator of the gallery, "but people who want to get here, get here. In my travels I have found that everyone knows the Renwick, and lots of people tell me it's their favorite museum in Washington."

The Renwick showcases American artists who work in clay, fiber, glass, metal and wood. There's Larry Fuente's whimsical *Game Fish*, a three-dimensional collage encrusted with yo-yos, dominoes, coins, cartoon figures and other mementos of childhood. Among the wood sculptures by Wendell Castle is the illusionary *Ghost Clock*, a mind-boggling trompe l'oeil. A recent exhibition, "Glass! Glorious Glass!" drew thousands of visitors. With 56 pieces by 41 artists, including the famed over-the-top glass master Dale Chihuly (Smithsonian, February 1992), the show sprawled through the high-ceilinged ground-floor rooms.

The museum's crowning jewel, however, is its Grand Salon, a gallery extending the length of the building—almost a hundred feet—and recently refurbished to evoke its Gilded Age roots.

As I take my first steps up the massive staircase leading to the gallery, Allen Bassing, public programs coordinator for the Renwick, stops me and asks what I can see of the Grand Salon from the bottom of the stairs.

August 29, 1978. Left on beach after one too many mai tais.



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Too near the gas jets, the canaries died as haute Washington chattered and clinked glasses.

Nothing, I reply, a bit baffled.

That is the point, he explains. As I climb the stairs, more of the room comes into view and its grandeur unfolds—like a curtain pulling back—revealing a magnificent collection of American art. In the style of the Victorian era, paintings crowd the rose-colored walls, suspended from wires attached to a rail that encircles the room. Standouts among the 170 artworks are three huge, breathtaking Thomas Moran landscapes of Yellowstone National Park and the Grand Canyon, two of them on loan from the U.S. Department of the Interior.

The windows in the room are adorned with heavy, hand-dyed damask draperies. Two plush doughnut-shaped couches, called poufs, provide seating. Poufs were very popular in the Victorian era, for keeping wallflowers away from the walls, I guess. In the center of each pouf sits an enormous vase, decorated with eagles, cannon and flags—centennial gifts from France to the United States. Entering the Grand Salon is like stepping into the opulent gallery of a Victorian collector.

Inside and out, the whole building smacks of that gaudy era of superficial grandeur, the pomp and bluster of nouveau riche entrepreneurs. The exterior once was festooned with 11 seven-foot-tall marble statues, "great figures of art," sculpted by one Moses Ezekiel of Virginia. They were established in niches along the facade and sides of the building's second floor. The "great figures" were Phidias, Michelangelo, Rubens, Rembrandt, Raphael, Dürer, Titian, Da Vinci, Murillo, Canova and one American, Thomas Crawford, who designed the statue on the Capitol dome, the bronze doors of the Senate wing and several other local fixtures.

William Wilson Corcoran, a very prosperous Washington banker and philanthropist, commissioned the gallery in 1858 to house his collection of paintings and sculptures. Corcoran took the architect, James Renwick, Jr., to Europe with him to search out likely models for the building, and they both fell in love with the Tuileries addition to the Louvre. Renwick Americanized the French Renaissance design by substituting ears of corn and tobacco leaves for the traditional acanthus leaves atop the columns. The building was Washington's first public art gallery.

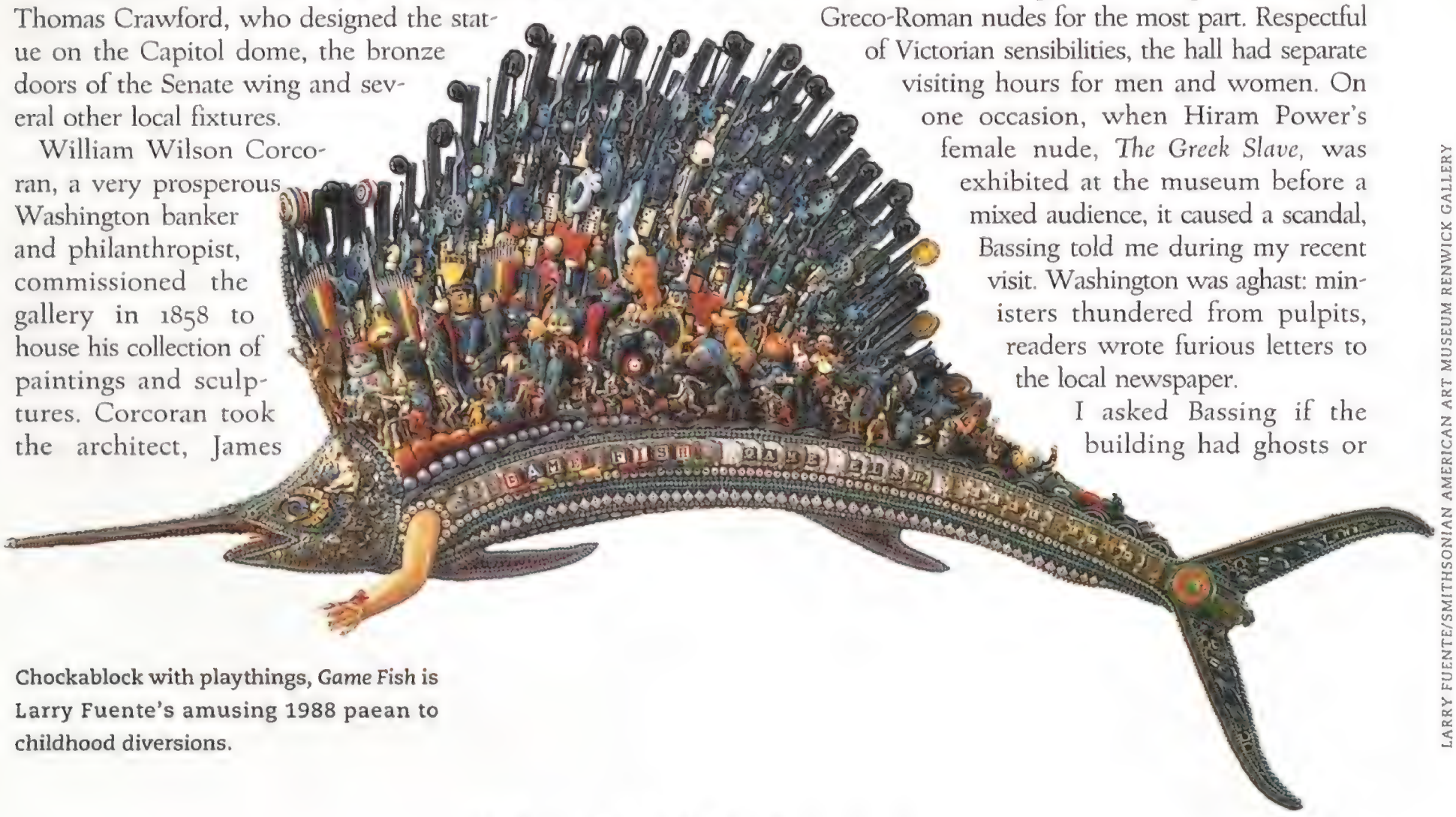
No sooner was the gallery finished than the Civil War began. On August 22, 1861, the Union Army seized the building to use as a uniforms and records warehouse. Not until 1869, well after the war's end, did the U.S. government return the place to Corcoran, who promptly sued for his back rent. After a $250,000 restoration, the building opened as an art gallery in 1874.

Corcoran, a Southern sympathizer, had sat out the Civil War in Europe and felt the need to reinstate himself with the local society. He decided to hold a great benefit ball to raise money to complete the Washington Monument, stalled at about one-third its planned height since the 1850s for lack of funds.

It was a great ball, all right. Hoping to add bright color and song to the festivities, cages of canaries were hung from the 40-foot ceiling of the Grand Salon. But the canaries were too near the gas jets that were used to light the room, and the birds all died as haute Washington chattered and clinked glasses beneath them. The affair cost so much that it never did produce any net profits.

The Great Hall of Sculpture, which once graced the first floor, was crowded with plaster-cast copies of statues—Greco-Roman nudes for the most part. Respectful of Victorian sensibilities, the hall had separate visiting hours for men and women. On one occasion, when Hiram Power's female nude, *The Greek Slave,* was exhibited at the museum before a mixed audience, it caused a scandal, Bassing told me during my recent visit. Washington was aghast: ministers thundered from pulpits, readers wrote furious letters to the local newspaper.

I asked Bassing if the building had ghosts or



Chockablock with playthings, *Game Fish* is Larry Fuente's amusing 1988 paean to childhood diversions.

LARRY FUENTE/SMITHSONIAN AMERICAN ART MUSEUM RENWICK GALLERY

spirits, figures you might see flitting from the room out of the corner of your eye. The closest he could come was a wake.

The Grand Salon is acoustically perfect and has been used by the Smithsonian for recordings.

It seems that the author of the song *Home, Sweet Home*, John Howard Payne, had died in Tunis and was buried there. Corcoran was incensed; certainly the author of the celebrated piece should be buried in his own country. So the philanthropist had the body exhumed and returned to Washington, where it was reburied after a proper wake in Corcoran's great building.

By 1890 Corcoran's collection had outgrown the gallery, and the museum's trustees erected the present Corcoran Gallery of Art two blocks away on 17th Street. The paintings were moved out in 1897, and two years later the U.S. Court of Claims moved in. Then that, too, overflowed the premises with its stacks of files and departed in 1964.

Slowly deteriorating, the building had been targeted for demolition. But just in time, in 1962, it was rescued by President and Mrs. Kennedy, who were already involved in a project to restore the Federal-style houses fronting Lafayette Square, opposite the White House. In June 1965 the Smithsonian requested and was granted the building to be used as a "gallery of arts, crafts and design." Officially renamed the Renwick Gallery, it became a branch of the Smithsonian American Art Museum.

Restoration took another six years or so, and the gallery was finally reopened to the public in January 1972. Since then it has proved a most versatile site for many arts, including lectures, dance performances and concerts. The Grand Salon, it turns out, is acoustically perfect and has been used by the Smithsonian Chamber Orchestra for recording sessions.

Surprisingly, the opulence of the Grand Salon and the exhibitions of contemporary crafts work well together.

"A walk through the Renwick proves that the magnificent Grand Salon can coexist in harmony with fine craft," said Kenneth Trapp, the Renwick's curator in charge. "The building itself is beautifully crafted; it is decorative art. And the Grand Salon falls out as a sort of separate space, but very sympathetic."

Some wonderful things have been exhibited here: ceramics by the great Peter Voulkos, Ed Rossbach's fiber work, Harvey Littleton's glass, Sam Maloof's furniture. And all of these artists have won Masters of the Medium awards from the James Renwick Alliance, a museum support group. Albert Paley, also an award winner, designed *Portal Gates*, an art nouveau work in steel, brass, copper and bronze, for the entrance to the museum shop. It has since been moved to an exhibition space on the second floor.

The museum shop, featuring work by American craft artists, is so outstanding that some people who have sold work there have been known to claim that they were "exhibited at the Renwick Gallery."

"The buyers cover the craft fairs pretty well," remarked Dorrie Pagones, the manager of the shop.

The store offers only American-made craft items, and generally something that's related to the show of the moment. During the glass show, a lot of jewelry and glass was on sale. During the Shaker home furnishings show, the offerings were baskets, furniture and dollhouse miniatures. When I stopped by, there was some unusual leather work by Deborah Einbender from Portland, Oregon, consisting of faces molded in leather and fashioned into purses, masks and cases. Also on display were some colorful rugs intended for wall hangings; they were crafted by some women from Quantico, Virginia, who operate under the title "Three Chicks Hooking."

Though fashioned in 1974 by Albert Paley, the sinuous lines of *Portal Gates* echoes the art nouveau movement of the late 1800s.

For an exhibition of quilts by Amish and African-American artists, which opens in October, the museum shop is stocking up on quilts, throws and pillows—handmade items befitting the Renwick's extraordinary exhibitions of the finest in American arts and crafts.

SMITHSONIAN AMERICAN ART MUSEUM RENWICK GALLERY

SMITHSONIAN HIGHLIGHTS

DIAMOND DAYS

In what might be called a duel of the diamonds, the National Museum of Natural History next month, on October 13, will present an unprecedented pairing of two of the world's most famous diamonds—the Hope and the Dresden Green. For the next 90 days, visitors will get a chance to compare these two fancy, or colored, diamonds—diamonds with parallel histories. Both came from the ancient mines of India; both were cut in London; and both were once crown jewels. Now Ronald Winston, of New York's House of Winston, whose father gave the Smithsonian the Hope, has arranged for these two gemstones to be seen together. Let the duel begin. —*Beth Py-Lieberman*

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This medicine can help many men when it is used as prescribed by their doctors. However, VIAGRA is not for everyone. It is intended for use only by men who have a condition called erectile dysfunction. **VIAGRA must never be used by men who are taking medicines that contain nitrates of any kind, at any time. This includes nitroglycerin. If you take VIAGRA with any nitrate medicine your blood pressure could suddenly drop to an unsafe or life threatening level.**

What Is VIAGRA?

VIAGRA is a pill used to treat erectile dysfunction (impotence) in men. It can help many men who have erectile dysfunction get and keep an erection when they become sexually excited (stimulated).

You will not get an erection just by taking this medicine. VIAGRA helps a man with erectile dysfunction get an erection only when he is sexually excited.

How Sex Affects the Body

When a man is sexually excited, the penis rapidly fills with more blood than usual. The penis then expands and hardens. This is called an erection. After the man is done having sex, this extra blood flows out of the penis back into the body. The erection goes away. If an erection lasts for a long time (more than 6 hours), it can permanently damage your penis. You should call a doctor immediately if you ever have a prolonged erection that lasts more than 4 hours.

Some conditions and medicines interfere with this natural erection process. The penis cannot fill with enough blood. The man cannot have an erection. This is called erectile dysfunction if it becomes a frequent problem.

During sex, your heart works harder. Therefore sexual activity may not be advisable for people who have heart problems. Before you start any treatment for erectile dysfunction, ask your doctor if your heart is healthy enough to handle the extra strain of having sex. If you have chest pains, dizziness or nausea during sex, stop having sex and immediately tell your doctor you have had this problem.

How VIAGRA Works

VIAGRA enables many men with erectile dysfunction to respond to sexual stimulation. When a man is sexually excited, VIAGRA helps the penis fill with enough blood to cause an erection. After sex is over, the erection goes away.

VIAGRA Is Not for Everyone

As noted above (*How Sex Affects the Body*), ask your doctor if your heart is healthy enough for sexual activity.

If you take any medicines that contain nitrates–either regularly or as needed–you should never take VIAGRA. If you take VIAGRA with any nitrate medicine or recreational drug containing nitrates, your blood pressure could suddenly drop to an unsafe level. You could get dizzy, faint, or even have a heart attack or stroke. Nitrates are found in many prescription medicines that are used to treat angina (chest pain due to heart disease) such as:

- nitroglycerin (sprays, ointments, skin patches or pastes, and tablets that are swallowed or dissolved in the mouth)
- isosorbide mononitrate and isosorbide dinitrate (tablets that are swallowed, chewed, or dissolved in the mouth)

Nitrates are also found in recreational drugs such as amyl nitrate or nitrite ("poppers"). If you are not sure if any of your medicines contain nitrates, or if you do not understand what nitrates are, ask your doctor or pharmacist.

VIAGRA is only for patients with erectile dysfunction. VIAGRA is not for newborns, children, or women. Do not let anyone else take your VIAGRA. VIAGRA must be used only under a doctor's supervision.

What VIAGRA Does Not Do

- VIAGRA does not cure erectile dysfunction. It is a treatment for erectile dysfunction.
- VIAGRA does not protect you or your partner from getting sexually transmitted diseases, including HIV–the virus that causes AIDS.
- VIAGRA is not a hormone or an aphrodisiac.

What To Tell Your Doctor Before You Begin VIAGRA

Only your doctor can decide if VIAGRA is right for you. VIAGRA can cause mild, temporary lowering of your blood pressure. You will need to have a thorough medical exam to diagnose your erectile dysfunction and to find out if you can safely take VIAGRA alone or with your other medicines. Your doctor should determine if your heart is healthy enough to handle the extra strain of having sex.

Be sure to tell your doctor if you:

- have ever had any heart problems (e.g., angina, chest pain, heart failure, irregular heart beats, or heart attack)
- have ever had a stroke
- have low or high blood pressure
- have a rare inherited eye disease called retinitis pigmentosa
- have ever had any kidney problems
- have ever had any liver problems
- have ever had any blood problems, including sickle cell anemia or leukemia
- are allergic to sildenafil or any of the other ingredients of VIAGRA tablets
- have a deformed penis, Peyronie's disease, or ever had an erection that lasted more than 4 hours
- have stomach ulcers or any types of bleeding problems
- are taking any other medicines

VIAGRA and Other Medicines

Some medicines can change the way VIAGRA works. Tell your doctor about **any medicines** you are taking. Do not start or stop taking any medicines before checking with your doctor or pharmacist. This includes prescription and nonprescription medicines or remedies. Remember, VIAGRA should never be used with medicines that contain nitrates (see *VIAGRA Is Not for Everyone*). If you are taking a protease inhibitor, your dose may be adjusted (please see *Finding the Right Dose for You.*) VIAGRA should not be used with any other medical treatments that cause erections. These treatments include pills, medicines that are injected or inserted into the penis, implants or vacuum pumps.

Finding the Right Dose for You

VIAGRA comes in different doses (25 mg, 50 mg and 100 mg). If you do not get the results you expect, talk with your doctor. You and your doctor can determine the dose that works best for you.

- Do not take more VIAGRA than your doctor prescribes.
- If you think you need a larger dose of VIAGRA, check with your doctor.
- VIAGRA should not be taken more than once a day.

If you are older than age 65, or have serious liver or kidney problems, your doctor may start you at the lowest dose (25 mg) of VIAGRA. If you are taking protease inhibitors, such as for the treatment of HIV, your doctor may recommend a 25 mg dose and may limit you to a maximum single dose of 25 mg of VIAGRA in a 48 hour period.

How To Take VIAGRA

Take VIAGRA about one hour before you plan to have sex. Beginning in about 30 minutes and for up to 4 hours, VIAGRA can help you get an erection if you are sexually excited. If you take VIAGRA after a high-fat meal (such as a cheeseburger and french fries), the medicine may take a little longer to start working. VIAGRA can help you get an erection when you are sexually excited. You will not get an erection just by taking the pill.

Possible Side Effects

Like all medicines, VIAGRA can cause some side effects. These effects are usually mild to moderate and usually don't last longer than a few hours. Some of these side effects are more likely to occur with higher doses. The most common side effects of VIAGRA are headache, flushing of the face, and upset stomach. Less common side effects that may occur are temporary changes in color vision (such as trouble telling the difference between blue and green objects or having a blue color tinge to them), eyes being more sensitive to light, or blurred vision.

In rare instances, men have reported an erection that lasts many hours. You should call a doctor immediately if you ever have an erection that lasts more than 4 hours. If not treated right away, permanent damage to your penis could occur (see *How Sex Affects the Body*).

Heart attack, stroke, irregular heart beats, and death have been reported rarely in men taking VIAGRA. Most, but not all, of these men had heart problems before taking this medicine. It is not possible to determine whether these events were directly related to VIAGRA.

VIAGRA may cause other side effects besides those listed on this sheet. If you want more information or develop any side effects or symptoms you are concerned about, call your doctor.

Accidental Overdose

In case of accidental overdose, call your doctor right away.

Storing VIAGRA

Keep VIAGRA out of the reach of children. Keep VIAGRA in its original container. Store at room temperature, 59°-86°F (15°-30°C).

For More Information on VIAGRA

VIAGRA is a prescription medicine used to treat erectile dysfunction. Only your doctor can decide if it is right for you. This sheet is only a summary. If you have any questions or want more information about VIAGRA, talk with your doctor or pharmacist, visit www.viagra.com, or call 1-888-4VIAGRA.

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SMITHSONIAN HIGHLIGHTS

Portrait of a Lady

AN NPG COLLECTION VISITS DALLAS, TEXAS

The Women's Museum: An Institute for the Future, in Dallas, Texas, will present the exhibition "Notable Women from the Collection of the National Portrait Gallery." Opening September 29, and featuring 50 paintings and sculptures of women "who have made significant contributions to the history, development, and culture" of the United States, the exhibition includes portraits of Susan B. Anthony, Pearl Buck and Marjory Stoneman Douglas (below). A journalist at the *Miami Herald*, Douglas brought attention to the plight of the Florida Everglades with her 1947 best-seller, *The Everglades: River of Grass*. The book led to the founding of the Friends of the Everglades, the environmental action

NPG's portrait of Marjory Stoneman Douglas, by Menden Hall, visits Dallas.

NATIONAL PORTRAIT GALLERY, SMITHONIAN INSTITUTION; P. 26 MICHAEL FREEMAN

group that donated the painting to the museum. Brandon Brame Fortune, NPG's associate curator of painting and sculpture, says that artist Menden Hall captured the energy of this vivacious activist: "One has the sense that she won't be sitting there for long."

Young Benefactors

2000 BLACK-TIE GALA

The 11th annual Young Benefactors evening gala and silent auction is September 9 at the National Building Museum. Tickets range from $85 to $125. For information, call 202-786-3030.

Margaret Atwood

ASSOCIATES LECTURE

In a return visit to the Smithsonian, novelist Margaret Atwood discusses her new book, *The Blind Assassin*, on September 27 at 6 P.M. in the S. Dillon Ripley Center. Atwood is the author of *The Handmaid's Tale*, *The Robber Bride* and *Alias Grace*. Copies of *The Blind Assassin* will be available for purchase at a post-lecture book signing. Call 202-357-3030 for tickets.

SMITHSONIAN Website

WWW.SMITHSONIANMAG.SI.EDU

At the Magazine's homepage, click on "Events" to go to the calendar and view on-line versions of Smithsonian exhibitions and activities.

Exhibitions and Events

NATIONAL MUSEUM OF AFRICAN ART

Identity of the Sacred: Two Nigerian Shrine Figures (September 24 through April 2, 2001)
Audible Artworks: Selected African Musical Instruments (through April 8, 2001)
A Concrete Vision: Oshogbo Art in the 1960s (through October 22)

INTERNATIONAL GALLERY, S. DILLON RIPLEY CENTER

PIANO 300: Celebrating Three Centuries of People and Pianos (through June 3, 2001)

ARTS AND INDUSTRIES BUILDING

Santos: Substance & Soul (September 17 through March 31, 2001)
Speak To My Heart: Communities of Faith and Contemporary African-American Life (through September 19)

DISCOVERY THEATER

Performances for youngsters, sponsored by the Smithsonian Associates. Call 202-357-1500 (voice or TTY) weekdays, 8 A.M.-4 P.M.

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"Rock the Rainforest! With the Central American All-Stars" (September 22, 10 A.M.)
"Aunt Nancy Tells the Tale" (September 25-29, 10 A.M. and 11:30 A.M.)

NATIONAL MUSEUM OF AMERICAN HISTORY

Rube Goldberg: Comic Art and Invention (through October)
This Land is Your Land: The Life and Legacy of Woody Guthrie (through September 24)
Fast Attacks and Boomers: Submarines in the Cold War (permanent exhibition)

NATIONAL MUSEUM OF NATURAL HISTORY

Ocean Oasis, a new giant-screen film premiering September 13 in the Samuel C. Johnson IMAX Theater.
Selections from Forces of Change: A New View of Nature (through September 24)

NATIONAL AIR AND SPACE MUSEUM

Special hours: NASM opens at 9:30 A.M. daily, through December 31. Permanent exhibitions include *Apollo to the Moon*, *Earth Today* and *Space Race.*

HIRSHHORN MUSEUM AND SCULPTURE GARDEN

Directions—Cathy de Monchaux (through October 26)
Ed Ruscha (through September 17)

RENWICK GALLERY, SMITHSONIAN AMERICAN ART MUSEUM

Read about the Renwick's recently refurbished Grand Salon in "Around the Mall" on page 22.

NATIONAL POSTAL MUSEUM

Recounting Roosevelt Presentation Albums, 1903-1905 (through February 23, 2001)

ARTHUR M. SACKLER GALLERY

Fountains of Light: The Nuhad Es-Said Collection (September 17, permanent)
The Heroic Past: The Persian Book of Kings (through October 29)
Music in the Age of Confucius (through September 17)

FREER GALLERY OF ART

Brushing the Past: Later Chinese Calligraphy from the Gift of Robert Hatfield Ellsworth (through January 2, 2001)
The Dragon's Moan (through October 1)

NATIONAL ZOOLOGICAL PARK

Vanishing Pollinators (through May 2001)

GEORGE GUSTAV HEYE CENTER, NATIONAL MUSEUM OF THE AMERICAN INDIAN [NEW YORK CITY]

Creation's Journey: Masterworks of Native American Identity and Belief (through October 2)

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All Roads are Good: Native Voices on Life and Culture (permanent exhibition)

COOPER-HEWITT, NATIONAL DESIGN MUSEUM
[NEW YORK CITY]

The Opulent Eye of Alexander Girard (September 12 through March 18, 2001)

SMITHSONIAN INSTITUTION TRAVELING EXHIBITION SERVICE

SITES serves those communities interested in experiencing the Smithsonian beyond Washington, D.C. Each year, SITES circulates exhibitions throughout the United States and abroad. To sponsor a show in your community, write SITES, Smithsonian Institution, Washington, D.C. 20560. This month some of the communities hosting these exhibitions include Rochester, New York (Strong Museum); St. Paul, Minnesota (the Minnesota Museum of American Art); Oklahoma City, Oklahoma (the Kirkpatrick Center Museum Complex).

CLOSED FOR RENOVATIONS

The Smithsonian American Art Museum and the National Portrait Gallery are closed for three years. The Anacostia Museum Gallery opens next summer.

Planning a Smithsonian Visit?

To receive a free Associates planning packet, write to Smithsonian Information, Smithsonian Institution, Washington, D.C. 20560-0010, or send your request via e-mail to info@info.si.edu, or call 202-357-2700 (voice) or 202-357-1729 (TTY), 9 A.M.-5 P.M., Monday-Friday; 10 A.M.-4 P.M., Saturday-Sunday, or visit www.si.edu. Note: Museums are generally open 10 A.M.-5:30 P.M. daily, except December 25. Parking is limited; Metrorail is convenient to most museums.

THE CASTLE—INFORMATION CENTER

Upon arrival make your first stop the Castle's Smithsonian Information Center. At the Associates Reception Desk, open 9 A.M.-4 P.M. daily, learn what's new at the Smithsonian and about other area attractions. Receive special Associates materials, hear about your discount privileges and register for a Sunday morning "Behind-the-Scenes" member's tour of the Castle.

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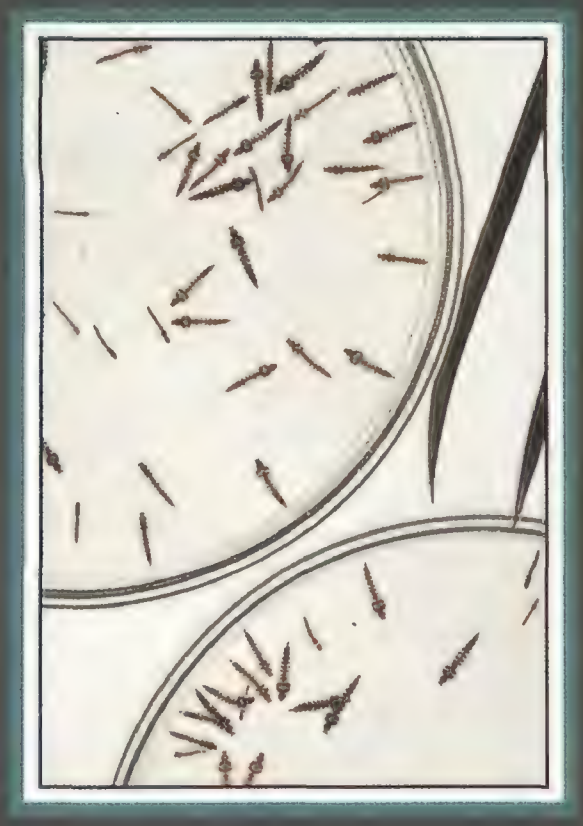

A NEW PANDEMIC IMPERILS HALF THE WORLD. SCIENTISTS THINK THEY KNOW WHAT HAS TO BE DONE, BUT THE DISEASE CONTINUES TO OUTSMART THEM

PHOTOGRAPHS BY MICHAEL FREEMAN

At a health clinic in Irian Jaya, Indonesia, malaria expert Dr. Steve Wignall, right, watches as nurse Oktopina Tabuni examines a baby. In much of Irian Jaya, residents receive at least one infectious bite per week from the mosquitoes (shown as larvae, at left) that transmit the disease.

THE PROBLEM ARRIVES AT SUNSET. EVERY EVENING, AS TWILIGHT BLANKETS THE TROPICAL world, the air grows thick with disease on the wing. It's happening around me right now as I sit on the porch of a shack in Armopa, a tiny outpost deep in the Indonesian jungle.

The sun slipped below the horizon 30 minutes ago, and in the gathering dark, danger rises from Armopa's swampy earth like an incoming tide. From daylight hiding places in the humid shadows, the mosquitoes have come out, zeroing in on any flesh they can find. They begin biting my bare feet, then move up my ankles. Within minutes, dozens of them are on the back of my neck. Some, no doubt, are carrying one of the malaria-causing species of *Plasmodium*, single-celled parasites that are transported by mosquito from human to human, leaving deadly infections in their wake.

I lift my feet from the porch's planked floor, resting them on a rail above the malarial flood. Beyond the porch, Armopa's stilt huts are illuminated by flickering cooking fires. Armopa is a region in Irian Jaya, Indonesia's state on the island of New Guinea. Much of the area is made up of new villages—grids of dirt paths, irrigation canals and garden plots—that exist because of a government "transmigration" policy. Mile-square clearings have been bulldozed into the jungle and populated by the landless and unemployed of Indonesia's other, more crowded islands.

To my left, seated beneath a bare lightbulb and sipping a lukewarm soda, is J. Kevin Baird, a 42-year-old commander in the U.S. Navy. An athletic man dressed in khaki shorts and a T-shirt, Baird has a thatch of wavy dark hair and a precisely trimmed mustache. He, too, has lifted his feet above the biting tide. "Here they come," he says, slapping a mosquito on his leg.

According to the World Health Organization, malaria infects up to 500 million people each year.

Baird has a Ph.D. in parasitology and is the malaria program director at NAMRU-2, the Naval Medical Research Unit in Jakarta. As director, he is charged with helping the Navy develop new ways to fight malaria—which, according to the World Health Organization (WHO), infects up to 500 million people a year and kills as many as 2.7 million, including at least one child every 30 seconds. Baird believes it is only a matter of time before scientists develop a vaccine that stops malaria in its tracks. For the present, he and NAMRU-2 are overseeing field trials for new antimalarial drugs. As malaria has, in recent years, become resurgent around the world, effective treatments are more necessary than ever. And malaria-heavy Armopa, with its fresh crop of farmers creating new lives from this spongy ground, is the perfect place to test new remedies.

NAMRU-2 has been operating out of Jakarta for 30 years, and in Irian Jaya for nearly 20. In cooperation with the Indonesian government, the research unit tests new drugs and diagnostic methods, and studies human immune response and the natural history of malaria—while treating many residents in the course of their studies. In addition to their work in Armopa, NAMRU-2 has researchers in the central highlands of Irian Jaya, studying possible causes of the malarial epidemics that arose there in the wake of El Niño.

A patient and persistent man, Baird has gotten malaria seven times in 12 years. "It's an incredibly resourceful parasite," he says, taking another swig of soda. "It's devious, and in an environment like this, it's everywhere." He slaps another mosquito. Navy studies in these jungles, Baird says, show that even if a person employs bed nets and window screens, he or she will still receive roughly one infectious bite a week. "Of course," he adds, "there are parts of Africa where you get one infectious bite every day."

In the lightbulb's glow, I examine a mosquito on my wrist. The bug focuses on my sunburned hide, dips its head and drives its needle-nose into my flesh. If I had not started taking the antimalarial drug doxycycline before I left the States, this could be my "infectious event." Or maybe another of the bites I'll get tonight will be the one. After all, I'm a prime target. I've been here five days.

Until recently, many in the United States and other Western countries may have remained blithely unaware of the persistence of malaria as a global killer. For the most part, in Northern, industrialized countries, the disease was essentially eradicated by the middle of this century. But recent cases appearing in New York, California, Texas, Michigan and New Jersey (not to mention that other mosquito-borne killer, West Nile virus) have raised interest and concern. Malaria researchers worldwide hope it will also raise awareness of the global impact of the disease, and of a drug-resistant malaria pandemic that imperils nearly 40 percent of the world's population. It's an epidemic that, in recent years, has had as high a global casualty rate as AIDS. Until the recent surge in AIDS deaths in Africa, in fact, the malaria casualty rate was significantly higher than that of AIDS.

The cause of the malaria crisis is threefold. First, malaria quickly develops resistance to any new drug it encounters. "Resistance is a common outcome with all antimicrobial drugs," says Dr. David Brandling-Bennett, deputy director of the Pan American Health Organization. "As soon as you administer any antimicrobial heavily, the organism targeted will show resistance. At that moment, you have to

The U.S. Navy has conducted research on malaria in Irian Jaya (opposite) for nearly 20 years. In the Irianese outpost of Armopa (above), a subject in a drug study takes his pill.

either administer the drug at levels that completely eradicate the organism, or drug-resistant strains of the organism will remain and predominate. It's survival of the fittest."

The second factor in the resurgence of malaria is a recent rise in global development. In many emerging nations, tropical frontiers along what has been called the "Malaria Belt" have undergone increased logging, mining, irrigated farming and road- and town-building. As more and more jungles and swamps are disrupted, the pools of water left behind become perfect environments for incubating anopheline mosquitoes, the carriers of malaria. And as more people flock to these areas, creating new hosts for the disease as well as new victims, malaria rates soar. Often, as is the case in much of the malaria-ridden world, there are inadequate public health services in place.

The third factor in the worldwide malaria epidemic is the lack of safe, effective and affordable insecticides. DDT—a pesticide with both a long history of effective use in mosquito control and a devastating effect on food chains—has been the center of an international debate, as the United Nations moves toward passing a global ban that may or may not include an exemption for malaria control. Many scientists point out that when restricted to limited, indoor use, DDT is not particularly dangerous to the environment. Others are concerned, however, that DDT meant for malaria control could easily be diverted to agriculture. And so the debate continues. In the meantime, an annual household spraying with the next-most-effective class of pesticides, pyrethroids, costs at least nine times as much as with DDT—and many poorer nations, facing outside pressures to avoid DDT, are now going without insecticide treatment altogether.

As far as Kevin Baird is concerned, while dousing houses with insecticide is effective, defeating malaria involves much more. "Developing new drugs and controlling mosquito breeding areas are equally important," he says.

In the central highlands of Irian Jaya, where traditional homes are built on steep hills, malaria rates are usually low.

It's 7:30 in the morning, and Baird wants me to see his drug-testing program. But first, as we walk along one of Armopa's swampy gardens, he points to the ground, where a shoeless human footprint has been pressed into the dark mud. "One good rain and that footprint fills with water," he says. "Then, in no time, that stagnant water is incubating mosquito larvae." In little more than a week, the larvae become adults. After the females fly off in search of "blood meals" that help their own eggs develop, some will pick up plasmodia from malaria-infected human hosts. Subsequently, they will transport those microbes and infect countless other people.

I'm now introduced to Totok, a 20-year-old Indonesian health-care worker. He and Dr. Judy Ling—a physician overseeing the clinical aspects of the study—are going to show me how a NAMRU-2 study is done. As we stroll up the central street of one Armopa village, beneath an already hot sun, Totok checks his satchel full of plastic bags. Some of the bags contain one of the study's test drugs—called Malarone and made by the international pharmaceutical giant Glaxo Wellcome—while others contain identical-looking sugar tablets packaged the same way. Subjects get either the drug, which is supposed to destroy the malaria parasite before it blooms in the bloodstream, or the placebo, which does nothing. (Elsewhere, other subjects receive the drug primaquine, which is already used in the United States and other countries as a malaria treatment, but is being tested here for use as a preventive.)

A study like this involves 300 to 400 subjects, with the identities of who gets drugs and who receives the placebo known only to off-site test

Malaria outbreaks in the highlands after El Niño drew researchers to the area. Here, Dr. Ating Solihin dips for mosquito larvae as local Ngalik children look on.

regulators. Precautions are taken to make sure no subject is pregnant, has malaria, or suffers from any other serious illness or systemic problem.

Totok turns off the main road up a dirt track called Street #8. The path is lined with wooden stilt huts with shuttered windows and corrugated steel roofs. Fronting each house is a small garden: lemongrass, peppers, flowers and spices. Behind some of the houses are small rice paddies, diked to keep the water moving.

Dr. Ling tells me that roughly 3,000 people—about 700 families—live in this village. As I turn to look across the area, tidy houses sit in every direction. Beyond the streets and houses, a thick tapestry of rain forest rises. Occasionally, prehistoric-looking birds called hornbills cross the sky, their feathers making a rustily mechanical *creeek* at each wingbeat.

We follow Totok up the road. Every day, he and a platoon of health-care workers visit every subject in the study: they inquire about each subject's health, administer a biscuit (to help digestion) and a pill, witness each subject literally swallow the pill, then get each to sign a document stating they have taken the pill at a prescribed time.

Totok stops at one of the stilt huts on Street #8. It's the home of Sujatin, a transmigrant from the island of Java. A petite woman with mocha-colored skin and dark hair, she's dressed in shorts and a Dallas Cowboys T-shirt. She invites us into her small front room and tells Totok she feels well.

"I enjoy being in the study," Sujatin tells me as she takes her pill with a sip of water. She signs the documents. "It keeps me from having malaria. My husband works as a logger in the jungles. He's gone for weeks at a time—so he can't be in the study, and he gets malaria. It is a terrible thing to have. Sweating. Very bad headaches. High, high fever. You vomit. You are so weak . . . when malaria comes every few days, you feel like you want to die."

Totok makes note of the time on Sujatin's document, and we move on, walking along the streets, dispensing Malarone or its placebo for the next 90 minutes. As we go, Dr. Ling says that six cases of malaria have been

In the village of Amuma, Dr. Ating and a colleague check two Ngalik tribesmen for malaria. The Indonesian word for the traditional penis gourd they wear is *koteka*.

presented so far during the study. She believes all six will turn out to have been people who were given the placebo, though not until the study results are tabulated will anyone know for certain. And, of course, once someone in the study gets malaria, they are placed on proven antimalarial drugs.

For Dr. Ling and Totok, daily rounds like this are the rule during the six months it takes to complete this part of the study. When this test is finished, the NAMRU-2 team will start over, testing yet another antimalarial drug.

After seeing perhaps 20 test subjects, we return to Armopa's medical unit, our clothing soaked in sweat. Totok's satchel is empty; his paperwork complete. He drops the paperwork off with a pair of lab clerks for incorporation in the study's database. In another office, Kevin Baird is combing through data files, searching for typos, trying to stay cool in the morning's spiking heat.

"These projects have their rivetingly boring moments," Baird says, wiping sweat from his brow. "But you have to stay on top of things. If something were to happen, it could throw the entire study into question." If any of the study's protocols were shown to have been breached, the blame would fall on Baird alone. He'd never be allowed to run a drug trial again. "That fast"—Baird snaps his fingers—"my career in this field would be over."

Baird and the rest of the Armopa team have far more to contend with than test protocols. Much of Indonesia is in turmoil these days. In Irian Jaya, a rebel group is agitating for independence from the central government. The government has lately begun phasing out the transmigration program, which most native Irianese have long opposed, but the phaseout has less to do with Irianese opinion than simple lack of funds. And even if transmigration had continued, the villages in Armopa are now fully occupied. With no more new migration to Armopa, Baird and NAMRU-2 are finding other study sites in which to continue their work, including recently settled palm-oil plantations near the city of Jayapura.

Baird and his colleagues are hardly the first to try to understand malaria, a disease that has been afflicting mankind since long before the dawn of recorded history. The early Egyptians are thought to have suffered from it, and Hippocrates, the ancient Greek physician, wrote of its fevers some 2,400 years ago. While various cultures have developed treatments for the disease's symptoms over the centuries—including the bark of the South American cinchona tree, which contains quinine—it wasn't until the end of the 19th century that scientists discovered that malaria was caused by the *Plasmodium* parasite and transmitted by mosquitoes.

In 1955 WHO declared a global war on malaria, launching an eradication campaign that included free DDT spraying of houses in afflicted areas and the development of new drugs. The program succeeded in some areas but produced little change in the overall number of malaria cases. It was officially declared a failure in 1976. Two years ago WHO decided to

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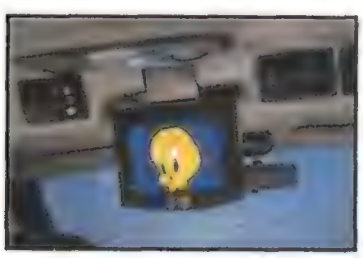

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P.T. Freeport Indonesia's mines—and mill (above)—are in mosquito-free mountains, but in the low-elevation company town of Timika, malaria control is essential.

try again, this time in concert with UNICEF, the United Nations Development Programme, and the World Bank. The aim is to cut malaria deaths in half worldwide within the next decade by raising awareness, providing antimalarial treatments, from drugs to insecticide-treated netting, and helping to identify hotbeds of malaria incubation.

Through WHO's Roll Back Malaria program, and the efforts of other groups and consortiums around the world, interest in malaria research has grown considerably. Some scientists are encouraged by recent progress on a genetically modified, malaria-resistant mosquito. Others are pinning their hopes for a silver bullet on the development of a malaria vaccine.

Dr. Stephen Hoffman, Kevin Baird's boss at the Naval Medical Research Center in Silver Spring, Maryland, is working on a DNA-based vaccine that will attack the parasite at an early stage, before symptoms emerge. In those individuals for whom the vaccine is not 100 percent effective, it will also limit the surviving parasites' reproduction so that the infection is less severe.

While hopeful that his and other vaccines will be ready in 7 to 15 years, Dr. Hoffman explains the difficulty in developing them. "First of all, plasmodia have about 6,000 genes in their DNA, compared to viruses like smallpox or measles, which have less than 30. The organism has built-in redundancy, so it can more readily escape attack. Second, if you take, say, a 6-year-old child from sub-Saharan Africa who has malaria, he may have as many as five different strains existing at once within him. And you have to have a vaccine that attacks all five. Lastly, the parasite matures and circulates in different forms inside the human body, hiding inside existing cells until it's ready to attack. So you have to create multiple vaccines, in effect, that are each stage-specific, and then combine them."

The species of *Plasmodium* that cause malaria begin as sporozoites, or malaria seeds, that can live in the salivary glands of female anopheline mosquitoes, of which there are at least 60 species worldwide. As an infected female anopheline takes human blood, sporozoites migrate into the human's bloodstream. The malarial seeds quickly seek out the liver, where they burrow inside cells. Though they can remain dormant for years, sporozoites usually multiply furiously over a period of less than four weeks, ripening into merozoites. When a liver cell fills to capacity, it ruptures, spilling thousands of merozoites into the bloodstream, where they penetrate red blood cells and multiply once again. In 48 to 72 hours, the red cells burst, releasing yet another bloom of merozoites in search of still more host cells. This is when the unfortunate victim begins to suffer from headaches, muscle and joint pain, sweat-drenching fevers and teeth-rattling chills.

Today, there are dozens of species of *Plasmodium* around the world, four of which infect humans. The most widespread of the four is called *Plasmodium vivax*; the deadliest is called *P.*

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falciparum. Together, these two account for nearly all of the world's malaria.

Vivax gets its name from the lively way its merozoites vibrate inside red blood cells when scientists examine them live under microscopes. As the heartiest malarial strain, it also thrives in nontropical environments and has managed to withstand barrages of antimalarial drugs.

Still, of the nearly three million people who die of malaria every year, relatively few have vivax. The vast majority have falciparum, which thrives in hot, moist environments, such as sub-Saharan Africa and Southeast Asia, and is named for the scimitar shape the parasite gives the red blood cells it invades. Beyond causing the anemia all malaria sufferers endure, falciparum also occludes blood flow through capillaries in vital organs, which often leads to death.

To prevent malaria, two basic families of drugs are now in use. The first, called "suppressives," eradicates malaria in the bloodstream. This group—which includes quinine, mefloquine and chloroquine, as well as such antibiotics as doxycycline and tetracycline—must be taken before and after visiting malarial zones to make sure all liver-stage cells have hatched and been destroyed.

A second family of drugs, called "causals," destroys the liver-stage merozoites before the parasite reaches the bloodstream. Travelers using one of these need take it only during periods of exposure to potentially infected mosquitoes. Currently just one causal drug, primaquine, can be prescribed in the United States, and it is licensed for use as a treatment, not as a preventive. Malarone, one of the drugs being evaluated by Baird and NAMRU-2 in Armopa during my visit, has since been licensed in the United States as a suppressive, and has also shown causal activity against falciparum malaria.

"In 1969, Timika had 600 people," Wignall tells me. "Today there are more than 75,000."

The availability of more effective new drugs is one important weapon in the war on malaria. Others are the old standbys—spraying houses with DDT, which many experts believe must be allowed as an exception to any ban; the use of insecticide-treated bed nets; and the systematic elimination of the standing water that mosquitoes need to breed. In most places, these weapons must be used in concert, while in others one may be enough to turn the tide.

In a suburb of Timika, where excellent drainage minimizes mosquito breeding habitat, mining-company monitors test for larvae.

Which is where Dr. Steve Wignall comes in. Wignall retired as a Navy captain in 1996 and went to work as an adviser on public health for P.T. Freeport Indonesia, the Indonesian arm of Freeport-McMoRan Copper & Gold of New Orleans. P.T. Freeport Indonesia mines the world's third-largest copper reserves and largest gold reserves, both in a mountain that, at almost 14,000 feet, forms part of the "spine" of Irian Jaya. Although the firm has been accused by watchdog groups of committing environmental and human rights abuses, its malaria control program is clearly a case of enlightened self-interest, benefiting everyone involved.

At the elevation of the mines, mosquitoes and malaria are nonexistent. But in the mid-1980s, expansion of the mine operations led Freeport to relocate many of its offices and employees' homes to the town of Timika, 50 miles south of the mine and 13,000 feet lower in elevation.

Wignall, a tall, avuncular Southerner wearing blue jeans and a button-down shirt, relates all this after picking me up at Timika's airport. "In 1969, Timika had 600 people," he says. "Today, there are more than 75,000. We estimate at least 80 new people a month arrive looking for work."

With around 30 feet of rain annually and nonstop construction in order to house the human inflow, Timika should rate as one of the world's malarial hothouses. But thanks to a $3 million-a-year public health program

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paid for and administered by Freeport, it doesn't. "Back in the 1980s, malaria was present in 85 percent of the people in the area," Wignall says, steering along well-tended drainage canals. "Today, we usually have a rate of 7 or 8 percent. We think most who are infected are new transmigrants—people not yet integrated into our public-health program. Still, our goal is to get the incidence of malaria here down to zero."

Wignall drops me off at P.T. Freeport Indonesia's malaria-control offices, where an Australian biologist named Peter Ebsworth is waiting to show me around. Gray-bearded and friendly, Ebsworth says Freeport's goal is to defeat malaria by controlling its source: mosquitoes. "Freeport has set a high standard for keeping the huge amounts of rain that fall here moving. That way, anopheline mosquitoes don't have an opportunity to breed."

At the hospital in Jayapura, a nurse attends a malaria sufferer. Blood in his urine may portend kidney failure and death.

Everywhere Ebsworth takes me, the earth has been gently graded toward the drainage ditches, concrete-lined trenches and catch basins that spirit the water toward the sea, 28 miles farther to the south. Freeport's executive suburb of Kuala Kencana is a marvel of tiered gardens and tilted earth. Its encircling forests have been tiered, as well. As Ebsworth is proud to point out, there is no mosquito breeding in Kuala Kencana—or anywhere nearby. "We've made sure that people understand the dangers of standing water outdoors," he says. "As a result, any mosquitoes we find here have almost always flown in from the outside."

Freeport actually pays workers to spend their nights attempting to catch mosquitoes. It also has its own mosquito abatement teams: dozens of men who spend days crossing the perhaps 400-square-mile area of Timika, Kuala Kencana and the outlying transmigration towns, where they sample ditches, jungle creeks and roadside channels with dip nets in search of mosquito larvae.

At the end of my three-day visit to Timika, Steve Wignall drives me back to the airport. "The money Freeport is spending here is what's keeping malaria at bay. But push is going to come to shove," he says, referring to the population growth. "We're not the government. Eventually, hard choices about who gets public-health and mosquito-control programs and who doesn't will have to be made."

According to Harvard economist Jeffrey Sachs, malaria costs impoverished countries billions of dollars in lost wages, business and tourism annually—more than $10 billion in sub-Saharan Africa alone. Aid of at least $1 billion per year, he suggests, might make all the difference—in reducing suffering and saving economies—if applied to research, prevention and treatment. Says Kevin Baird: "WHO estimates that more than $56 billion a year is spent on health research—but less than 10 percent is directed toward malaria and the other diseases that affect more than 80 percent of the world's population. Most of that money—which comes primarily from rich nations—goes toward problems that directly affect the citizens of those nations. And that includes everything from cancer research to developing Viagra and baldness treatments."

That might change if those of us who dwell in affluence had to confront, firsthand, the suffering malaria causes elsewhere. It will be a long time before I forget the man I saw in a Jayapura hospital's malaria ward. Gaunt, pallid and unconscious, he had been suffering for months from an attack of falciparum. The crimson liquid in the catheter bag beside his bed was the patient's urine, stained by hemoglobin released from exploded red blood cells. "His water has gone black," a physician told me. "Not a good sign."

I stared at the patient, imagining a bloom of microscopic malarial parasites spreading through his bloodstream, searching out fresh red blood cells to invade. In a war that spans the ages, his body was the latest battleground.

Author Donovan Webster and photographer Michael Freeman are both frequent contributors to SMITHSONIAN.

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An American in Bourron-Marlotte

WHEN THEY MOVED HERE IN 1976, THE AUTHOR AND HIS WIFE THOUGHT THEY KNEW ALL ABOUT THE FRENCH. HOW WRONG THEY WERE

ILLUSTRATIONS BY ROBERT GANTT STEELE

EVER SINCE JULIUS CAESAR CAME clanking into Gaul with his legionnaires more than 2,050 years ago, countless other foreigners have invaded this land, now called France, and then gone back where they came from. I arrived here in the 1960s as a correspondent and never left. I sat on spindly little gold chairs in the Elysée Palace to listen to the lectures (disguised as press conferences) of Louis XX, a.k.a. Charles de Gaulle, drank cheap red wine, lived in a skylighted atelier, studiously avoided mingling with all of the tourists at the Eiffel Tower, smoked Gauloises, pretended that I didn't have a horrendous American accent, chatted with Jean-Paul Sartre and generally made myself over into the standard food-snob Francophile bore.

After a dozen or so years of this, my wife, Brien, and I decided to give up the small apartment we had in Paris and look for a more spacious place for ourselves and our two infant children in the country. We found a century-old, high-gabled, three-story stone house with a walled garden, a garage, a well and a woodshed. On a rainy October day in 1976, our family moved into the curiously named village of Bourron-Marlotte, which then boasted four restaurants, three bars, two bakers, three hairdressers, three grocery stores, a gas station, a couple of hardware stores, two butchers, a château and a church. Now, a quarter of a century later, the kids are grown and gone but we're still here, the town's only resident Americans.

"What's it like there?" a friend asked the other day, and I found there was so much to say that I didn't know where to begin. If I were writing a travel guide, I'd say Bourron-

Marlotte is a village of about 2,800, formed after World War II when the neighboring hamlets of Bourron and Marlotte were amalgamated into a single community, lying some 40 miles south of Paris at the edge of the royal Fontainebleau Forest. If I were going for the celebrity angle, I could talk about the painters. There have always been artists in and around this place, attracted by the creamy Ile-de-France light, the unspoiled landscapes and the picturesque little subsistence farms that proliferated here until very recently. Corot visited Bourron, and Renoir, Cézanne, Pissaro, Sisley and Monet spent seasons here, putting up in inns or renting space from locals.

We're happy to keep quiet about all that, though, and let the nearby towns of Barbizon and Moret-sur-Loing mine dollars, deutsche marks and yen from these same illustrious names while choking their sidewalks with souvenir shops and their streets with tour buses.

None of that really counts. What matters for Brien and me is that in Bourron-Marlotte we have gradually become well acquainted with a subject we thought we learned all about in Paris but really didn't: the French. I don't know why, but there is a persistent tendency among foreigners who come to live for a while in France to write about the experience in the same superior, vaguely amused tone Victorian Englishmen employed to describe their forays among the Pygmies and the Hottentots. The natives, it seems, are irascible (Parisian cabbies), libidinous (all that nudity and *oh lala!* business), inconstant (foreign affairs) or, worst of all, cute (*A Year in Provence*).

Let's destroy a few myths here. The French are not cute. They are quick and smart and hard-edged, and if they tend to grow testy at the sight of foreigners, it's difficult to blame them, because the land God gave them is something like a natural paradise, and probably even before Caesar there were foreigners aplenty chanting I-want-it-and-here-I-come. So they're not "nice" the way Americans are. They're on their guard. They wait and see. They observe.

We got observed all right, Brien and I. With a 2-year-old son in a stroller and an infant daughter in a chest sling, we were a spectacle that couldn't be missed, but one that also tended to elicit favorable reactions. There's nothing like children for breaking the ice. And so it was that, stroller to stroller, promenading out on the rue Renoult, Brien and Muriel Genthon met. Muriel was a young civil servant whose husband, an architect, worked in their home 100 yards from ours, and whose firstborn, Maud, was a couple of months younger than our little Stephane. That alone was enough to initiate goodwill, but it got indissolubly cemented into lasting friendship when we took care of Cheops, the Genthons' adventurous boxer, after he escaped from the house when his owners were away.

Jean-Pierre Fiocre is nicely symbolic of the changes coming to France.

Our integration into Bourron-Marlotte society took a long stride forward when we placed the kids in the local school system, rather than in the exclusive international kindergartens and schools in nearby Fontainebleau. Soon Stephane and Romy were learning about Vercingetorix (chieftain of a rebellious Gallic tribe crushed by Caesar) and Joan of Arc rather than George Washington and Abe Lincoln, and singing about Mon Ami Pierrot rather than Little Jack Horner. Within a few months, their French was as good as their English, and they were correcting their parents' awful accents and grammar.

A good Catholic, Brien regularly attended the quiet evening masses given on weekdays by *Père* Chauvin for a small handful of the faithful, but she deliberately avoided the grand Sunday celebrations that drew the local bourgeoisie in all their finery. This got her noticed, singled out, approved. In time, her evident spiritual sincerity brought

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the ultimate sign of recognition: she was asked to become one of Bourron-Marlotte's catechism teachers. The job was not easy or much fun, but at length it gained her the grudging respect of her students and immense prestige among the village elders.

For my part, I traveled a lot to report the European stories that afforded me the princely income and opulent lifestyle to which freelance writers are accustomed. These comings and goings, plus the fact that Brien and I were American, plus the huge old TV and FM antennae high atop the house, which I never bothered to have removed, inevitably led to something that had never even crossed my mind in Paris: the suspicion that I was leading some kind of double life.

"You're with The Firm, aren't you?" whispered Guy, sidling up to me one evening over drinks. A political science professor whose kids were in the same school as ours, Guy wore the sly smile and confidential manner of one who has pierced The Secret. Of course I denied it, but of course that only reinforced his conviction. They would deny it, wouldn't they? So I finally just gave up. Let them think I worked for the CIA if they wanted.

As the years passed, we grew more and more familiar with the finer points of the town's social stratification, which was rooted in its history. In the Middle Ages, Bourron and Marlotte were hamlets of thatched cottages lying around the château that still sits at the southern edge of town. Toward the end of the 19th century, the Paris bourgeoisie, following the trail blazed by the artists, began building their summerhouses, some of them little short of mansions, in the midst of all that farmland. Trains sped them from the city to Fontainebleau, whence transportation by horse and buggy carried them through the forest to Bourron and Marlotte.

Within the past decade, a swarm of single-family houses built for more modest incomes has come to occupy the wheat and sugar beet fields. There are hardly any farms left in town, even if a few plots are still cultivated and a few tractors still potter along through the streets. In fact, the only major crop that's presently growing within town limits is grass. Jean-Pierre Fiocre sells his high-quality turf to golf courses, soccer stadiums and housing developments. He is nicely symbolic of the changes that are coming to France as they already have to America.

"I'm a French peasant who loves baseball and drinks Coke," he says with an unabashed laugh. Jean-Pierre's incorrigibly optimistic nature, twinkly blue eyes and droopy blond mustache make him a dead ringer for one of the Gallic tribesmen of the popular *Asterix* comic book series. He founded the village's first and only baseball team, regularly goes to Disneyland Paris and is such a computer expert that he writes his own programs and assembles his own machines. Still, his roots go deep—the Fiocre family has been tilling Bourron-Marlotte land approximately forever—and he is both a town councilman and a living repository of local history and folklore.

Germaine Besson loves to organize family gatherings, to cook and to eat.

Although he is too young to have lived it, Jean-Pierre can tell you about Bourron-Marlotte during World War II, when the Germans came to take over, and when American B-17s swooped in low to bomb the little oil refinery by the railroad station, knocking out a sizable section of the village in the process. He can tell about the tramps and other fascinating characters who enlivened the local scene years ago, too, and about *la Mère Catherine*, a woman down in the poor section of town who bore 23 children by seven different husbands. He rubs shoulders with the grandees, but he also knows the unfortunates, like the simpleminded wretch who lived in a leaky, hand-built shack in the forest, supporting himself mainly by snaring rabbits to sell their skins at local markets, and hiring himself out as a day laborer for a few francs per hour.

If Jean-Pierre is representative of the dynamic young

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entrepreneurs who are now reshaping France, Bourron-Marlotte continues to bear heavy traces of its old-world social structure. There is still a pecking order in town, and it has two pinnacles, one noble and one bourgeois. The nobility is incarnated by Count Yves de La Bédoyère, owner of the Bourron château and scion of an ancient family of Breton aristocrats. Like Englishmen of similar lineage, La Bédoyère counts on tourists and rentals of the château for marriages and banquets to help pay for the upkeep, and his business partner is none other than Jean-Pierre Fiocre. The count provides some of the capital and some of the land, and the Coke-drinking peasant does likewise while directing the day-to-day operations of growing and transporting his turf. For centuries it was the privilege of the nobility to exploit the peasantry as serfs. Now they stand together, bemoaning the tax man who afflicts them both.

The bourgeoisie top dog in town is Jean-Louis Vilgrain, inheritor of the considerable fortune built on les Grands Moulins de Paris, a flour milling business founded by an ancestor in the 19th century. Jean-Louis works in the city and spends weekends in a vast, walled domain abutting the forest: four houses, an Olympic-size swimming pool, a tennis court, numerous outbuildings and promenades, and the biggest toy soldier battlefield that I have ever seen. When he is not re-creating Waterloo, Austerlitz or Borodino, Jean-Louis pursues numerous business interests. His resplendent wife, Myriam de Colombi, a former actress, owns her own theater in Paris.

Until a few years ago, I would have said that Bourron-Marlotte's small Spanish and Portuguese population represented the bottom of the pecking order, but times are changing. Almost without exception, the town's Iberians arrived in the postwar period as poor and frequently illiterate laborers or factory workers, at a time when France desperately needed manpower to rebuild from its wartime destruction into the prominent role it currently occupies in the European Union. And labor they did, so hard and so well that most of them own their own homes now, and their children and grandchildren are not only educated but prosperous, too, with many of them moving into prestigious jobs.

Bourron-Marlotte is home to yet another distinctive class, or rather, caste: the INSEAD professors. INSEAD (originally known as Institut Européen d'Administration des Affaires) is an extraordinarily successful international business school in Fontainebleau, founded in 1959 by a couple of Harvard Business School graduates. With Europe discovering the pleasures of enrichment through liberal capitalism, there was a pressing demand for young executives to make the system work, and INSEAD rapidly became one of the Continent's prime providers of them.

Michel Valenti marched Juliette's coffin on his shoulder all through town.

The professors comprise a multinational corps of specialists in such arcane subjects as corporate finance, mergers and acquisitions, and organizational behavior. They enjoy great prestige. They jog, attend one another's parties, passionately discuss challenges they have faced and interest rates they have calculated, while vying in an undeclared competition to remodel local barns and farm buildings into ever more palatial residences. A sizable corps of maids, cleaning ladies, gardeners and caterers depends on their largesse.

But what, you may be wondering, about the ordinary inhabitants of Bourron-Marlotte—the normal French doing their normal French things? It will likely come as no sur-

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prise to learn that they fall into approximately the same categories as those you would expect to find in an American village: some are funny, some boring, some stingy, some generous, some you like to be with, others you'd rather avoid. We have our favorites, of course, and each one affords a little glimpse into the character and genius of this people.

ently infallible knowledge of the secrets of the bodies of mammals. Limping athletes and ankle-sprained dancers called on Papy for his massagings, squeezings and twistings, and many older villagers preferred his treatments to the conventional therapeutics of the local doctors. Papy Beaumatin sold his place and went off a few years ago to some anonymous retirement home where there are no Mobylettes and, one assumes, no mushrooms.

You'll never find Germaine Besson in a retirement home—she would snort at the very idea. Germaine owns a rambling old weekend place a short stroll away from our house down the rue Murger. She's 94, an unfailingly optimistic retired engineer and great-great-grandmother who buried her own mother at 104, her husband long before that and her daughter's husband a few years after. Longevity seems to be built into the Besson women. When Germaine's mother was still alive, there were five generations of females in the house, and on summer days our end of the village could always tell when the clan was sitting down to eat by the clamorous tintinnabulation of Germaine's brass lunch bell out by the kitchen door. She loves to organize huge family gatherings, to cook and to eat, and I have never seen her refuse a glass of red wine. Until her eyes started failing last year, Germaine drove her own car down from Paris every weekend, then biked around town to buy her newspapers and bread, stubbornly refusing to dismount on the one hill that intervenes. Now she hoofs it,

Michel Roche was a member of the equestrian team that won an Olympic medal.

Take Papy Beaumatin, for instance, whose surname literally means "beautiful morning." For years we saw him without realizing he was famous: a cheery, rubicund face in steel-rimmed spectacles framed by a battered old white helmet, speeding through town on a prehistoric Mobylette motorbike. At length we learned that he was a retired *tripier* and *charcutier* (pork butcher specializing in tripe), a wonderful cook whom you might be able, if you were lucky, to hire to rustle up a special dinner, and a redoubtable mushroom expert who harvested sacks of *cèpes, lactaires délicieux* and *morilles* in the Fontainebleau Forest. But that was only a fraction of his talent, for he was also a renowned *rebouteux*, a layer-on of hands and manipulator of bones, muscles and joints whose decades of experience as a butcher had given him intimate and apparcharging along the rue Murger with the energy of a physical education teacher.

Bourron-Marlotte women are highly visible, and that is the way it should be, because they are an attractive, personable lot. Part of the pleasure of buying our daily fresh bread at the bakery on rue Murger is discussing the day's selection with Madame Canault. Petite and gracious behind her display case of croissants, brioches, *pains au chocolat* and *tartes aux pommes*, she is tastefully bedecked with chic earrings and necklaces set off by the slight hint of lace showing at her bodice. A hundred or so yards farther down the road in the little *8 à 8* supermarket, Madame Depreyter, with her bright pink lipstick, blinding white smock, blinding white smile, ritualistic one-pump handshake and velvet voice, is a paragon of customer relations

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whom INSEAD professors would do well to study. And over in the adjoining village of Montigny, where everyone goes to the Peugeot garage to buy gas and get cars fixed, Monsieur Turpin wears an expression of permanent anxiety as he sprints double-time from job to job, while his women in the gleaming showroom, the blonde Madame Turpin (fancy foulards and shawls) and her brunette daughter (smoky-eyed, languorous), provide motorists with a fashion show that changes daily as they amble out to pump gas in the latest styles, made up just so and shod in consequence. Only the French, I think, can pump gas in high heels and look so glamorous.

Only the French can pump gas in high heels and look so glamorous.

Probably the closest thing to a true celebrity in Bourron-Marlotte these days is Michel Roche, a horseman who was a member of the four-man show-jumping team that won an Olympic gold medal in Montreal in 1976. Michel owns one of the many riding stables that dot the Fontainebleau region, and any afternoon he may be found at his place on the rue Allongé, sweeping up straw and horse manure and muttering through the half-extinguished cigarillo at his lip that everything is going to hell.

The counterweight to Michel's incorrigible pessimism is Karol Horvath, a stripling of 72 who spent his working life running a luxury grocery store in a wealthy Paris suburb, and came to Bourron-Marlotte for retirement. A Horvath-style retirement means perpetual motion. Rather than settling into one of those cute little stucco ready-mades and sitting back to watch TV, he bought a ruin that nobody wanted and taught himself to be a carpenter, painter and mason. For 15 years he worked on the place, beam after beam and stone after stone, until he had it so shaped up that it could have been featured in some artsy modern-living magazine. Villagers unanimously praised his dedication, but their deepest admiration was reserved for the clever way he left the dilapidated, patched-up facade unfinished when everything else had been polished to perfection. It was, most agreed, *du misérabilisme*, a trick to make the tax inspector feel sorry for him and go easy on the assessment. But last summer Horvath took everyone by surprise by erecting a big scaffold and, in a few days of intense labor, laying on a fresh, virginal blanket of ocher stucco, thereby destroying both the facade's defects and the comfortable Cartesian logic of the antitax ploy. Down the road, Michel Roche was already shaking his head and saying I told you so.

Even though most houses in Bourron-Marlotte are walled and their shutters ritually slammed shut every night, *tout se sait:* everyone knows everyone, and most of everything about them too. Two funerals showed us how true that is.

The first was for Monsieur Ailleret. Pierre Ailleret was one of the village's most respected notables, an engineer with the highest academic credentials who had been instrumental in modernizing France's electric grid. Upon retirement he maintained a busy schedule of conferences, papers and international symposia until well into his 80s, while Denise, his equally energetic wife, did her part for the community by sitting on the town council. When Pierre died, his funeral in *Père* Chauvin's church was the closest thing to pomp and circumstance that a small village can experience. Of course the mayor and the town coun-

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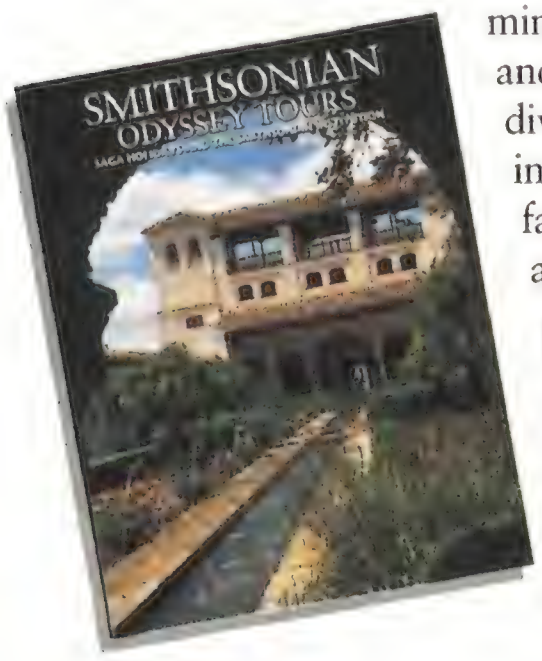
Inset: Smithsonian Associates in Paris at Notre Dame Cathedral.



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cil were there, and everyone else who counted in Bourron-Marlotte, but a large contingent also arrived from Paris in black limousines to pay their respects to a person of national importance.

Juliette Valenti, on the other hand, was not a person of national importance. She was a local girl, daughter of a jolly, robust and somewhat outrageous tree surgeon named Michel Valenti, whose unkempt house at the southern edge of town is home to innumerable animals, a collection of worn-out cars and a permanent atmosphere of anti-conformist good cheer. Juliette, so lovely and spirited, was only in her mid-20s when she was diagnosed as having a particularly nasty strain of cancer. She died in pain, and stunningly fast. Obviously, nowhere near 2,800 people can fit inside Bourron-Marlotte's church, but when *Père* Chauvin said the funeral mass for Juliette on a hot August afternoon a couple of years ago, it really did seem as if the entire village had turned out to mourn her. People filled every pew and every inch of standing room, then overflowed onto the gravel walkway and the lawn to stand silent, hats in hand. When it was all over, Michel was at the head of the pallbearers, and he marched the coffin on his shoulder all the way through the village to the cemetery, tears streaming down his face. We followed Juliette to her grave, we and these French people who strike foreign visitors as so cold and heartless.

Another misconception about the French is that they are rude and ungrateful. On the 6th of June 1994, Jacques Margerie, then Bourron-Marlotte's mayor, invited the whole town to join him for a special ceremony of thanks for the Normandy invasion of 50 years earlier, for the liberation of France and for the thousands of young Americans who fell on the beaches. I was only a boy when D-Day happened and had done nothing at all to deserve special notice, but Jacques made me come as a guest of honor, because my passport made me a surrogate for all of the G.I.'s lying under those symmetrical white crosses in Colleville-sur-Mer.

I realized then, if I had not thought much about it before, that I was still very much an American in my neighbors' eyes and my own. The act of living in France does not automatically turn you into a Frenchman. Still, we have been subjected to local influences of all sorts. Our language at home is peppered with French words and phrases, and our children learned at a very tender age to come up and shake hands with everyone upon entering a room, and then to do it again when they left. They developed the unerring instincts that tell them which persons should be greeted with two pecks on the cheek and which with four.

The French, for their part, often grumble at the arrival of fast food, baseball caps and cyberspace culture, but they incorporate so much franglais into their everyday talk that the Académie Française, official guardian of the language, has been ringing the alarm bell for nearly 30 years now. To no avail—*le cash flow* and *l'Internet* are necessary nouns (*"le must"*) for adults now, just as "cool" and "clean" are among the innumerable, well, cool adjectives for their kids. It's all part of globalization and it's unstoppable. Things are coming together.

There are certain areas and certain mannerisms where we met the French more than halfway. (In diplomatic circles they call it "going native.") Our children were born in the American Hospital in Paris, but we followed French custom as a matter of course by dipping a finger in the celebratory glass of champagne and letting baby have a taste. By the time they had reached the end of their first decade, we were allowing them to have a sip or two of red wine at the table, and neither one of them has turned into an alcoholic yet. If our diet at home has had its share of tuna melts and hamburgers, it has also included some pretty serious lashings of garlic and smelly cheeses, and in restaurant outings the kids fell upon snails and frogs and tripe sausage with gloriously savage delight.

There are hardly any farms left in town, but a few plots are still cultivated.

And around Epiphany time, how could we not respect the *galette des rois*? This wonderful dessert, a gorgeous, flake-pastry disk stuffed with almond paste, ritually appears in bakeries in January, and when you buy it you also get a golden cardboard crown, the symbolic memory of the Three Kings of Orient who came visiting baby

Jesus. Every galette has a little "bean," or porcelain figurine, hidden somewhere inside the pastry, and the person who discovers the token in his or her slice is crowned as royalty amid cries of *Vive le roi!* or *Vive la reine!*

It's all mirth and gastronomic jollity now, but in fact this is ancient and serious stuff that reaches back to the very roots of France's Christianization. Infinitely less authentic is the way commerce over here has latched on to Halloween as a gimmick for selling candies, masks and assorted knickknacks. But that, too, is part of the cultural interaction that is implacably changing our world.

We're so alike and so different. French kids believe in Santa Claus, too, only over here they call him Father Christmas, and he carries his presents not in a sack over his shoulder but in a wicker grape basket on his back.

Even if we wanted to, Brien and I would never be able to Gallicize ourselves enough to totally meld into the society. The fact is that for as long as we stay here in Bourron-Marlotte, we will continue to be on the margin, foreigners who don't quite speak like the natives and don't quite act like them, either. As such, we have been accepted and even integrated into the community. We're grateful for that, and don't ask for anything more.

Rudolph Chelminski has written recently on concert pianists and jeu de paume. Artist Robert Gantt Steele lives near San Francisco.

Imagining the

Orient

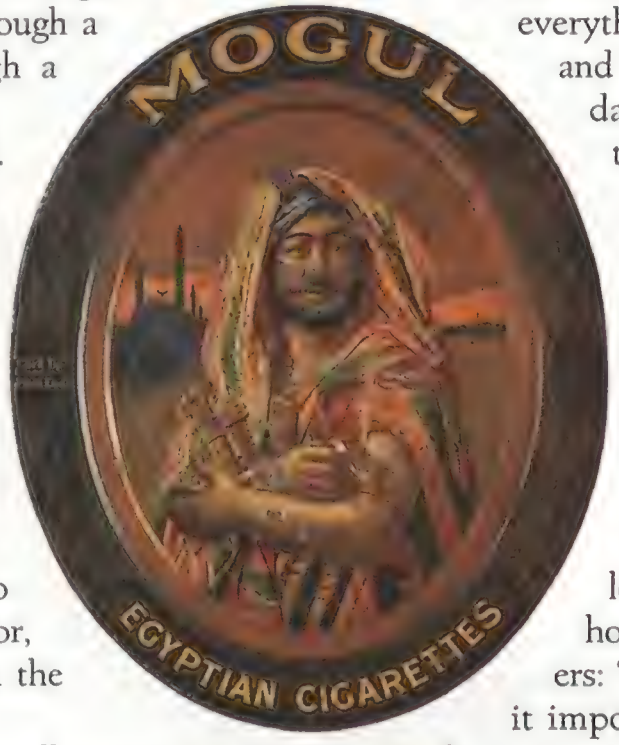
BY DOUG STEWART

A NEW EXHIBITION EXPLORES THE POTENT MYSTIQUE OF THE NEAR EAST AND ITS SWAY ON AMERICAN ART AND CULTURE

The Siesta (1878), by American Orientalist Frederick Arthur Bridgman, perfectly evokes the then-popular view of the East as a languorous Eden—a place of luminous silks, glinting brass and midday indolence.

THE YOUNG WOMAN, STRETCHED OUT ALLURINGLY ON A divan amid the patterned tile, carved wood and tropical foliage of Frederick Arthur Bridgman's 1878 *Siesta,* is demure compared with the odalisques then popular in European art. Only her apparent availability, and the hint that her lethargy stems from the pipe at her elbow, might have been considered risqué to Victorian Americans.

Bridgman, the archetypal American Orientalist of the late 19th century, was renowned for his arduous painting trips through North Africa and his preference for painting local women, not studio models. Tame as *The Siesta* might have been, Bridgman went to great lengths to find young Algerian women willing to shed their veils for him. The napping woman was likely one of Bridgman's favorite subjects, a young widow named Baïa, reclining in her own tiny home. Painting a widow had its advantages. Bridgman and some colleagues were once surprised by a prospective model's husband who returned home and chased them with a stick "as if he were scaring out chickens," the artist wrote in his 1890 memoir, *Winters in Algeria*. Some of his models had to sneak through a neighbor's house and drop through a rooftop trapdoor to pose for him.



For Bridgman, the risks paid off. Orientalism—an artistic style that mixed imagery of the Islamic East with, in many cases, a large dose of imagination—was hugely fashionable in the 1870s and 1880s art world. The Orient in those days meant Egypt and North Africa, Turkey, and the Holy Land. In America, the Orientalist vogue in art had its heyday in the late 19th century and spread to popular culture—the carnival, the parlor, the cabaret and the movie theater—in the first decades of the 20th.

A major exhibition exploring the still-potent mystique of Orientalism will be at Baltimore's Walters Art Gallery from October 3 to December 10. "Noble Dreams, Wicked Pleasures: Orientalism in American Culture, 1870-1930" was organized by the Sterling and Francine Clark Art Institute in Williamstown, Massachusetts, where it is on view through September 4. The show brings together works by John Singer Sargent, Frederic Edwin Church, Robert Henri and other painters, along with a wide array of furniture, ceramics, decorative arts, photographs and silent-film clips. It travels to the Mint Museum of Art in Charlotte, North Carolina, from February 3 to April 22, 2001.

The objects on display, many of them exquisitely made, helped to romanticize, eroticize and sometimes demonize the Near East, says Holly Edwards, an authority on Islamic art and architecture. Edwards curated the exhibition and edited the accompanying catalog for Princeton University Press and the Clark. Portraying Islamic culture accurately was beside the point, she says. "People constructed an imaginary Orient intimately connected to their own needs. Some people needed escape from the modern world. Some people needed religious inspiration. Some people simply needed to have a good time."

To writer Bayard Taylor, the Orient was an exotic land of adventure that freed him, he claimed, "from everything that could remind me of the toil and confusion of the bewildering world." A dashing and wildly popular author of travel books, Taylor helped shape the American public's image of the Orient in the mid-19th century. An 1855 portrait by Thomas Hicks shows him posing like a sultan, surrounded by pillows on a terrace overlooking Damascus. He wears a turban and holds the mouthpiece of a water pipe in one languid hand. In *Lands of the Saracen*, published that same year, Taylor describes a divan in his Damascus hotel room and confesses to his avid readers: "Although not naturally indolent, I find it impossible to resist the fascination of this lounge. Leaning back, cross-legged, against the cushions, with the inseparable pipe in one's hand . . . one is surprised to find how many hours have slipped away while he has been silently enjoying it." Never mind the rigors of ordinary Arab life: Taylor's firsthand accounts of Oriental baths, hashish and strong coffee promoted the Orient as a place of luxury and ease.

To Frederic Edwin Church, by contrast, the Orient meant the Bible's timeless, storied Promised Land. Church was a celebrated member of the Hudson River school of landscape painting who shifted to Oriental subjects after a visit to Palestine and Syria in 1868. A deeply pious Pres-

SANDY SCHREIER; ART EVANS/DUKE HOMESTEAD, DURHAM, NORTH CAROLINA; PP. 60, 61 PRIVATE COLLECTION

A curious blend of authentic ethnographic detail and cultural distortion, *The Snake Charmer* (above) was painted c. 1880 by French Orientalist Jean-Léon Gérôme, well noted for his preference for fabricated ensembles. Opposite: In the early 20th century, Oriental motifs were often used in advertising. The fan (top) promoted French couturier Paul Poiret's perfumes; the tin sign marketed Mogul cigarettes.

byterian, Church viewed his trip as a pilgrimage, as did many of the wealthy American tourists who journeyed to the East following the Civil War. The Nile, the pyramids and Constantinople were on every tourist's itinerary, but the real draw was Jerusalem.

"Because Americans saw their own country as a promised land," Holly Edwards says, "they viewed the Holy Land as almost primordially connected to American shores. People like Church were eager to document the Holy Land in a scientific way and make that documentation square with the Bible." As part of that effort, Church in 1870 produced a highly detailed, dramatically sunlit oil of the holy city, *Jerusalem from the Mount of Olives*, that invited viewers to place themselves in Jesus' footsteps and see the sacred terrain as Jesus saw it. To help them, the artist included a numbered key to the painting's significant sites. Church later retired to Olana, an Oriental mansion of his own design overlooking the Hudson, and filled it with mementos of his travels, including pressed flowers, small rocks and other objects that he and his wife had scavenged from various biblical spots.

Many artists who traveled to the Orient in the late 19th century were after neither romance nor spiritual uplift. For them, the Orient was a route to professional advancement. In Europe and especially France, Orientalism was a favored style of the state-supported art establishment. Critics and salons smiled on highly realistic, profusely detailed scenes of armed eunuchs and bathing concubines, of weathered stone and gleaming tile, draped cloth and undraped flesh. Everyday life in Europe was thought too humdrum to be a worthy subject of great art (an assumption the Impressionists and others had begun to dispute).

The master of French Orientalism circa 1870 was Jean-Léon Gérôme, two of whose paintings are included in the Clark Art Institute's show. Widely praised in their day, *The Slave Market,* and *The Snake Charmer* (above), were—and are—both titillating and disturbing: a captive female submitting naked to a pre-auction exam, a bare-bottomed lad entwined with an enormous pythonlike snake. Gérôme's work stimulated "simultaneous lip-licking and tongue-clicking," in the words of modern critic Linda Nochlin.

"Gérôme was thought to be archaeological in his accu-

STERLING AND FRANCINE CLARK ART INSTITUTE

racy," says Edwards. Yet scenes like these were stagy pastiches that the artist certainly never witnessed. "One of the reasons Orientalist painting was so potent and even insidious was that it seemed so real. To uncritical audiences, these were pictures of the way the Orient really was." To Edwards, canvases like these mirrored France's patronizing attitudes toward her Muslim colonies.

American Orientalists, who were typically white male Protestants from New England, avoided the open eroticism of their European counterparts. Many shied away from depicting women altogether. Instead of painting harems and baths, they chose architectural renderings and desert landscapes. An authentic portrayal was often less important than a picturesque one. The banner-worshiping Moors in Edwin Lord Weeks' dramatic c. 1880 *Interior of the Mosque at Cordova* (p. 70) were not only fictional but, to an idol-eschewing Muslim, sacrilegious. An auction catalog in 1905 explicated the scene: "Preaching the holy war against the Christians, the old Moor holds aloft the green flag of Mohammed, while he curses the 'dogs of Christians' with true religious fervor." The words are the auction house's, not Weeks', but the sentiment is consistent with the genre. For many 19th-century Christians, Islam was both fascinating and distasteful.

More than a few American artists traveled East largely to confirm their own preconceptions. Of a village in Algeria in 1870, the painter Robert Swain Gifford wrote to his wife: "This is one of the kind of places I have seen in my dreams way back in early youth when I had been reading tales of the East and particularly the 'Arabian Nights.'" Artists like Gifford, Sargent, Elihu Vedder and Samuel Colman brought home canvases distinguished by vibrant, warm colors and exotic settings. "This is what sold," explains Edwards. "Orientalists didn't paint squalor." Catering to the demand for Oriental romanticism, Gifford and Vedder also illustrated editions of *The Arabian Nights* and the *Rubáiyát of Omar Khayyám*, respectively (works far better known in America than in the Islamic world).

Some artists created their own tasteful Orient. In New York, William Merritt Chase crammed his West 10th Street studio with an artful disorder of Oriental carpets, antique muskets, brassware and other knickknacks. For Chase and his rivals, evoking the mysterious, opulent East in a studio, as on a canvas, conveyed to customers an air of well-traveled worldliness and refinement (though the fez-wearing Chase, for one, had never set foot in the Orient).

Indeed, the romance of the imaginary Orient endured in American culture even as Orientalism went out of fashion in fine-art painting. It took on new life as a way to lend a stylish gloss to home furnishings. Louis Comfort Tiffany, who began his career as an Orientalist painter, helped pro-

STATE ART MUSEUM OF FLORIDA, COLLECTION OF THE JOHN AND MABLE RINGLING MUSEUM OF ARTS, SARASOTA

mote Eastern-tinged interiors and motifs at the turn of the century. The Clark's show includes an ornate "Saracenic Tea Service" in enameled silver from Tiffany and Company. The set bears little relation to anything used in Arab lands (where coffee, not tea, was the beverage of choice). Nor is a spectacular rosewood and oak "cabinet of curiosities" based on traditional Islamic designs. Rather, its unknown American maker mixed a dash of Persia with a dollop of India and then improvised. "What would have mattered to people about this was its superb craftsmanship and exotic flavor," says Edwards. "Sitting in a parlor, it would have evoked an ambiance of imaginative luxury."

As Chase, Bridgman and other painters had learned, the Orient was a powerful sales tool. "It represented a lot of things that people didn't have and wanted," Edwards says. Near the century's end, department stores and other mass-merchandisers began marketing Oriental lamps, Oriental jewelry, Oriental candy. Imported cigarettes with Turkish tobacco were a relatively new indulgence, and tobacco companies promoted them with cigar-store sultans and sultanas and brand names like Mecca, Medina, Fatima and, of course, Camel. Well-appointed homes had smoking rooms with appropriately Oriental decor. A budget-conscious family might simply set up a Turkish corner in the parlor, with a plush sofa, some silken pillows and perhaps an *Arabian Nights* print on the wall.

Amid all this hokey stereotyping of the Islamic East, one might have expected the World's Columbian Exposition in 1893 to offer a corrective. The Chicago fair's Department of Ethnology organized a mile-long midway featuring pavilions of village life from around the world. Here visitors could amuse themselves watching Persians eat with their fingers while lying down, or frighten themselves by staring into a Bedouin's face (which betrayed "the cruel instinct that he vainly seeks to hide beneath his richly colored robes," in the words of a souvenir book).

The sprawling fairgrounds attracted millions of visitors. The top draw, more popular even than the midway's colossal Ferris wheel, was the Streets of Cairo, thanks to a troupe of Egyptian belly dancers who performed daily. Photographs from the fair reveal the dancers to be fully clothed, even dowdy. Yet to Victorian Americans they were a crowd-pleasing form of proto-burlesque. After the fair closed, three of the Egyptian dancers performed at New York's Grand Central Palace in 1894 and were promptly arrested for immoral conduct. Naturally, this only

BARON DE MEYER/LINDA AND DUNCAN IRVING

Museum founder Gertrude Vanderbilt Whitney was photographed c. 1913 (right) wearing the Orientalized attire she favored at the time. Artist Robert Henri's decidedly modern *Salome* (left) is from 1909.

Renowned landscape painter Samuel Colman was among the earliest American artists to tour North Africa. His masterful *Moorish Mosque of Sidi Halou, Tlemcin [Tlemcen], Algeria* (1875) deftly balances monumental forms with figural vignettes.

added to the allure of what was now being called hootchy-kootchy dancing. Within a few years, "kootch dancers," with names like Little Egypt and the Oriental Fantasy Girls, were a standard act in traveling carnivals. Almost single-handedly, belly dancing pushed the American popular image of the Orient from teasingly sensual to openly erotic.

On a higher cultural plane, an Orientalist fad was soon sweeping the dance world. Modern-dance diva Ruth St. Denis' bejeweled stage persona in dances like "Egypta" was inspired by a drugstore poster she spied in 1903 advertising Egyptian Deities cigarettes. As with the odalisques of the Parisian salons, the Oriental trappings of St. Denis' dances made her frank sensuality—and bare midriff—more acceptable to American audiences. There were good nights and bad nights, of course. When Richard Strauss brought his opera *Salomé* to New York in 1907, the uproar over his prima donna's "dance of the seven veils" closed the show down after one night.

Within months, however, Florenz Ziegfeld's first Follies was showcasing a whirling Salomé in pearls and a gauzy skirt. The following summer, Ziegfeld's balletic star, one Mlle. Dazié (otherwise Daisy Peterkin of Detroit), was leading dance classes on the theater rooftop for 150 aspiring Salomés a month. Many were headed for the cabaret circuit. Robert Henri's 1909 oil portrait of one such Salomé, casually brazen and bare-bellied, offers a grittier, less romantic version of the 19th-century Orientalist ideal.

High fashion, too, enjoyed an Orientalist phase. Designer Léon Bakst's filmy, dazzlingly colorful costumes for the Ballets Russes' *Scheherazade* at the Paris Opera in 1910 were an instant sensation. Society women in American cities were soon wearing turbans, harem pants gathered at the ankle, tasseled handbags and loads of pearls. Their outfits' voluminous drape fit in with a growing desire for less restrictive, corset-free clothing. A notable devotee of the Oriental look was heiress Gertrude Vanderbilt Whitney, who posed for both fashion spreads and portraits in oil wearing her customary garb of flared tunics and harem pants. Costume balls of the day came to resemble productions of *Aida*. At a gala he hosted in 1913, Louis Comfort Tiffany commanded his guests to come dressed à l'Orientale; those lacking a costume were fitted on the spot. Tiffany himself presided in a turban and pearls.

For consumers of Orientalia, the lure of the East was akin to that of the Wild West. In both cases, the appeal

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was in part a nostalgic yearning for a supposedly carefree life with more open space and fewer moral strictures. "There were many popular stories in the first decades of the 20th century about this romantic desire to flee into the desert," says Edwards. "The desert was a place of stronger passions, bigger truths, more intense experiences." One such story was Robert Hichens' overwrought romance novel of 1904, *The Garden of Allah*, about an Englishwoman finding love and spiritual fulfillment in the Algerian desert. Despite its literary shortcomings, it went into 44 editions over the next 40 years and was turned into a hit Broadway play (with live camels) and a string of movies. When another publishing phenomenon, *The Sheik*, became a movie in 1921, the desert vied with Rudolph Valentino for the honor of being the film's most romantic star. The movie was so popular that flappers and their boyfriends for a time were known as shebas and sheiks.

A colorful 1923 poster crudely mixes the patriotic and the allure of the exotic to promote journalist Lowell Thomas' Travelogues lecture tour.

The silent-film industry, indeed, played a central role in mass-marketing Orientalism. Possibly the first movie ever made—by Thomas Edison back in 1893—was a studio performance of the dance of the seven veils. *Cleopatra* was filmed five times between 1908 and 1918, while new "Salomés" were cranked out almost annually. The pseudo-Oriental attire of silent-film vamp Theda Bara—loud jewelry and metal chains on bare skin—blended sex appeal and moral depravity. Studio publicity confided that she was the offspring of a sheik and a princess, born in the shadow of the pyramids. (She was actually Theodosia Goodman from Cincinnati.) One of Hollywood's biggest spectacles in the 1920s, both on- and off-screen, was *The Thief of Baghdad* with Douglas Fairbanks, Sr. At its 1924 premiere, a parade of elephants led the way to Hollywood's lavish Egyptian Theater. There, from a parapet, a barker in Bedouin dress called out show times to the faithful. (This and several other silent films are on view as part of the Clark's exhibition, among them Theda Bara as Salomé and Valentino in *The Sheik*.)

Along with the equating of deserts with romance, a voyeuristic fixation on harem life was an enduring theme of pop Orientalism. Sheet music of the teens and twenties sometimes spoofed Islam's flexibility on the subject of monogamy. In "Give Me the Sultan's Harem," the singer pleads, "He's past 83, and his thousand wives need a fellow like me." By this time, the satirists were poking fun at someone else's satire of the Orient. Songwriters, comedians, choreographers and screenwriters with shows to open and products to sell were far, far removed from the sights, sounds and smells of Beirut or Tangier.

A dramatic example of this widening gap between Orientalism and the Orient was the elaborate rituals of the Ancient Order of the Nobles of the Mystic Shrine. Founded in the 1870s, the Shriners by the 1920s were a hugely popular national men's club. Convocations gave middle-class men a chance to dress up with scimitars and curly-toed slippers and clown around as fun-loving Oriental potentates.

Masquerading as a knight of the desert has appealed to Westerners since well before Bayard Taylor wrapped his first turban. The most celebrated 20th-century Arab impersonator was T. E. Lawrence, who helped orchestrate the Arab uprising against the occupying Turks near the close of World War I. Lawrence was little known outside British military headquarters until American journalist and impresario Lowell Thomas discovered him and turned him into Lawrence of Arabia.

Thomas' phenomenally successful lecture tour in the 1920s involved newsreel footage, hundreds of hand-colored lantern slides, and a ton and a half of audiovisual equipment. Advertising for the show, written with help from Thomas' friend Dale Carnegie, hailed the heroic Lawrence as "the uncrowned King of Arabia" whose hit-and-run exploits were "a tale of wild adventure—colorful as the Arabian Nights, poetic as the Rubáiyát." In his memoirs, Thomas recalled opening night at London's sold-out Covent Garden, where the stage had been dressed with palm trees and burning incense: "The curtain opened on the Nile set, the moon faintly illuminating distant pyramids. Our dancer glided on stage in a brief Oriental dance of the seven veils. [Thomas' wife] Fran had set to music

LOWELL THOMAS ARCHIVES, MARIST COLLEGE, POUGHKEEPSIE, NEW YORK

Don Smith, UPS package car driver, and Elder P.J. Thomas—co-founders of Manna Ministries, Alabaster, Alabama

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American artist Edwin Lord Weeks' *Interior of the Mosque at Cordova* (c. 1880) successfully conveys the extraordinary scale and dramatic character of the building, and depicts it and individual worshipers in almost photographic detail. The fabricated nature of the scene, however, is clearly revealed by the flag-bearer, whose idolatrous stance is inconsistent with the practice of Islam.

the Mohammedan call to prayer and, from the wings, a lyric tenor sent this haunting, high-pitched melody sailing away to the farthest reaches of the theatre. Two minutes later, I stepped into the spotlight and began to speak."

Like Bayard Taylor 70 years before, Thomas packaged his Orient with equal measures of drama and corn in order to grab his audiences. Mass-media stereotyping of the Middle East continues to this day, and for the same reason: to grab an audience. "I have a copy of a recent Silhouette romance called *Sheik Daddy*," Holly Edwards says, laughing, "and a mail-order catalog with harem outfits for kindergartners." In action movies and comic books, harem-envy remains a favorite cliché. Meanwhile, last spring a pop-musical *Aida* opened on Broadway and ABC TV devoted two nights to a lavish new *Arabian Nights*.

Interestingly, not all Middle Easterners object to this sort of popularization. Moviegoers in Cairo and Istanbul flocked to see David Lean's wide-screen *Lawrence of Arabia* in the 1960s and Disney's animated *Aladdin* in the 1990s. Ironically, Arab collectors and others of Middle Eastern descent now pay high prices for Gérôme's paintings of eunuchs and slaves and other fever-dream portrayals of an Orient that never really was. "You couldn't touch a Gérôme now," says Edwards. "They're too expensive. Arab collectors look at paintings like these as records of traditional ways of life that are now lost"—and in many of their details, they are. A strong dose of Orientalism is evidently a more effective selling tool than its original practitioners ever imagined.

The author, a regular contributor, lived in Istanbul for a time and has a degree in Near Eastern Languages and Literatures from Harvard.

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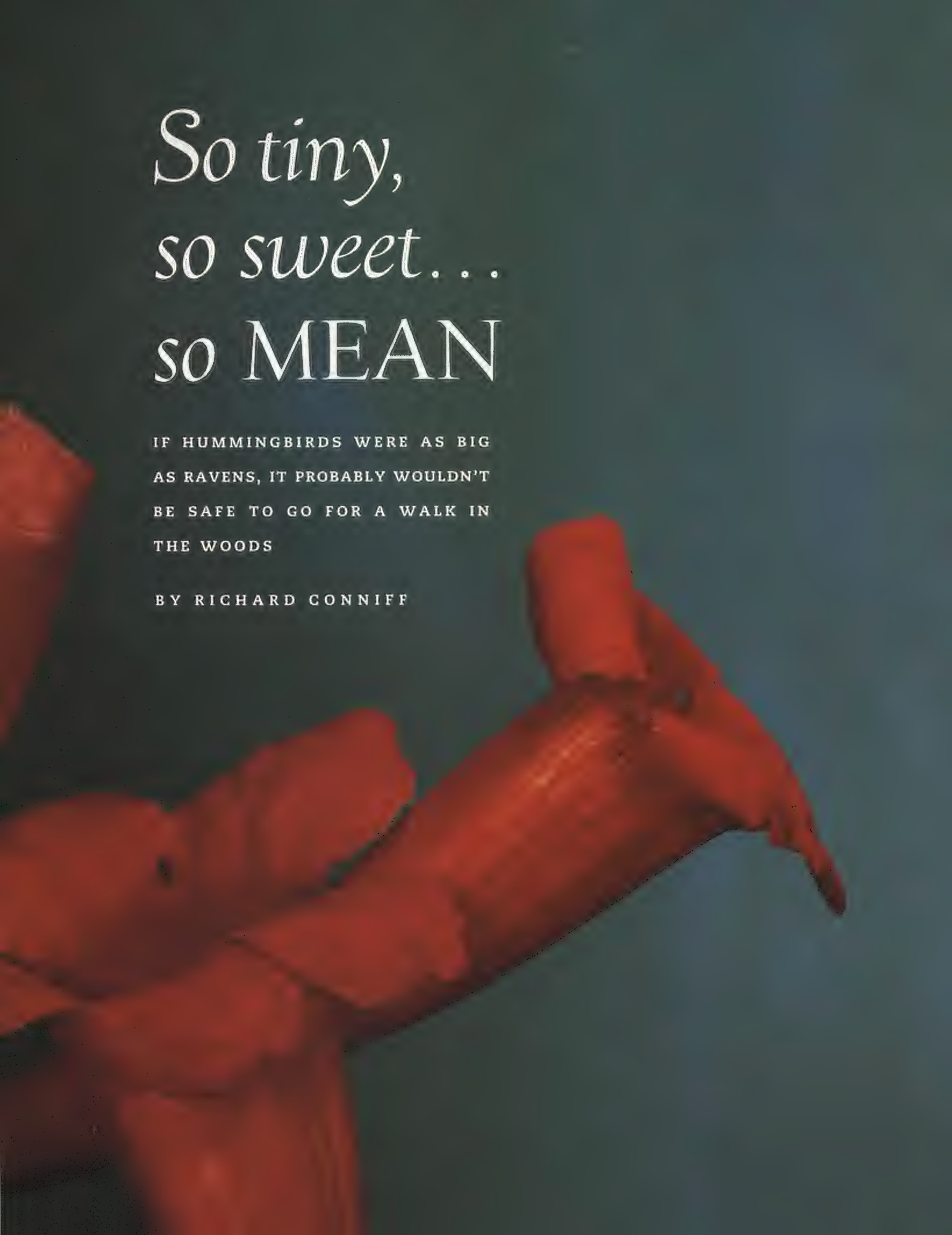


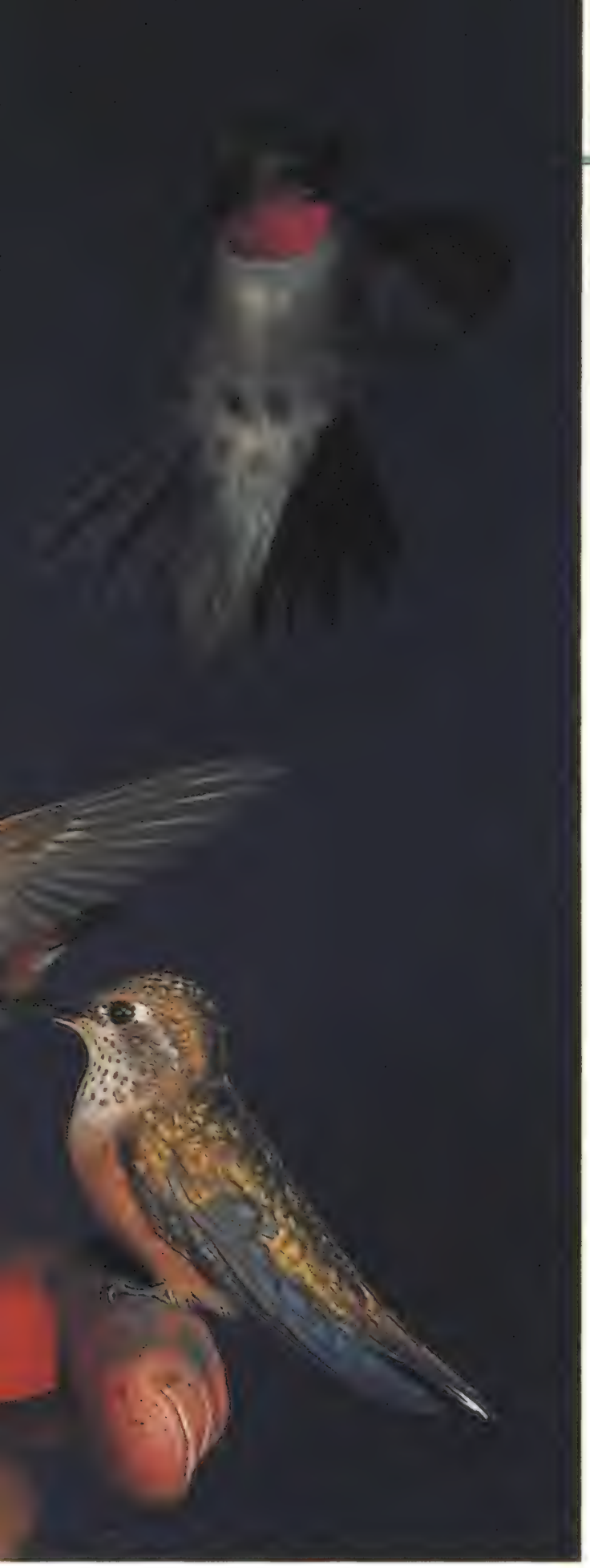
A broad-tailed hummingbird investigates a trumpet flower in Colorado.

IT WASN'T QUITE SIX ON A RADIANT ARIZONA MORNING WHEN MARION PATON, A RETIRED school cafeteria manager with big tinted glasses and golden hair, padded into her kitchen and glanced out the picture window. Nineteen people sitting in her backyard stared back through their binoculars. There was a fat, bearded man in a luau shirt and a hat with the brim bent up in front. There was a slight, older man, mild as a parson, with round, wire-rimmed eyeglasses and a blue zip-up jacket. There was a woman in clamdigger slacks, white socks and a bush hat studded with birding pins. The assembled crowd was engaged in the behavior Paton calls "whooping and dooping."

"There's a very nice violet-crowned on number four," said a guide, "and you can really see that white breast. Oooh, oooh, it's that male rufous. Flash that tail at us again!"

Did Paton perhaps long for a little privacy, at least until the coffee dripped? The question astounded her. "What for?" she asked. She did not

PP. 72, 73 WENDY SHATTIL AND BOB ROZINSKI



SID AND SHIRLEY RUCKER/DRK PHOTO

It would take more than a man holding the feeder to discourage these hummers in Arizona from bellying up to the bar.

even mind the time a couple of duck blinds turned up in the yard, with television cameras trained on her house. "I love people," she said. "I love nature."

She wandered outside. "Canyon towhee running around by the hose," said a guide, and the binoculars whipped right. "Yellow warbler singing behind us." The crowd swiveled around. Then, one by one, the lenses came yearningly back to Paton's modest house, where feeders full of sugar water hung from the eaves. They were swarming with hummingbirds, which John James Audubon once likened to "a glittering fragment of the rainbow."

In fact, the tail feathers and metallic gorgets coruscating in the moist air looked more like the whole damned spectrum. But the action here was too intense for rainbow analogies: broad-taileds, Costas and calliopes jostled around every feeding hole, and other hummingbirds twittered impatiently nearby. Paton's house in the remote town of Patagonia happens to be in the middle of a major north-south flyway. It's also right next to a nature preserve. On a good day, she gets 11 hummingbird species (of the 17 recorded in southeastern Arizona) and maybe 50 bird-watchers. Down the road toward Nogales, Jesse Hendrix, the keeper of another unofficial hummingbird way station, boasts 10,000 hummers a day on his 150 feeders at the height of the migration, and he can run through 150 pounds of sugar a week. Paton prefers to keep things modest, with no more than eight feeders.

"These creatures have a following like mythical beasts," said one of the guides, a little ruefully. "There are people who don't care anything about birds, or other wildlife or nature, but they love hummingbirds. We had one woman tell us: 'I just love hummingbirds and unicorns.' And I don't think she drew a distinction between the two." The guide's name was Tom Wood. He was from the Southeastern Arizona Bird Observatory. "People come in," he continued, "and they say, 'They're so tiny, and they're so sweet,' and we'll say, 'Well, they are tiny.'" Wood trained his binoculars on a feeder. The glittering fragments of rainbow were at that moment swatting and screaming at one another in a relentless bid to get to the head of the line. "They're fighter pilots in small bodies. We've seen a bird knock another hummingbird out of the air and stab it with its bill. People still don't believe it. They think they're little fairies." He shrugged. "We're probably lucky these things aren't the size of ravens, or it would not be safe to walk in the woods."

Hummingbirds are among the smallest warm-blooded animals on earth, and though it may be heresy to say so, they are also among the meanest. The bee hummingbird, a Cuban species, weighs less than a dime, and even middleweight species like the rufous and broad-tailed hummingbirds weigh less than a nickel. Their size makes them cute—and also dictates their fretful, bickering, high-rev way of life. A big stolid raven can store enough energy to plod through good times and bad. But even in the best of times, a hummingbird is a slave to its raging metabolism.

Hummingbirds get most of their energy by sipping nectar from flowers, and a typical hummingbird needs 7 to 12 calories of energy a day. This sounds idyllic, until you do the math: it's the equivalent of a 180-pound human having to scrounge up 204,300 calories a day, or about 171 pounds of hamburger. To keep itself alive, a hummingbird must manage to find as many as 1,000 flowers and drink almost twice its weight in nectar daily. It's enough to give even a very pretty little bird the personality of a junkyard dog, not to mention an urgent need to pee. A scientific paper about the rufous hummingbird includes this endearing notation: "SOCIAL BEHAVIOR: None. Individual survival seems only concern."

One morning at the Rocky Moun-

tain Biological Laboratory, in the village of Gothic, Colorado, a researcher named Bill Calder reached into a hardware-cloth cage and gently folded a fresh-caught rufous in the palm of one hand. "Hello, little man," he said, and to a visitor, he added, "He's straight from God-knows-where. Somewhere between Montana and Alaska." It was only mid-July, but this thumb-size bird had already flown roughly 2,000 miles north from his winter home in Mexico. With a combination of luck and cussedness, he had established a territory, defend-

Hummingbirds seemed to be everywhere on the slopes around the Calders' cabin.

ed it from rival males, put on courtship displays for passing females and mated with as many of them as possible. Now he was on the road south again.

"You've got to see this in the sun," Calder said. He held the bird up, and the patch of color at its throat glowed with deep, shifting reds and oranges. The throat patch, or gorget, is likely a display device for attracting females and intimidating rivals, but the iridescent colors were entirely appropriate to the rufous hummingbird's high-energy way of life. "It's like a burning coal," Calder said.

He took the bird inside, weighed it, crimped a tiny metal identification band on one leg, returned outdoors and set it free. He and his wife, Lorene, have been doing this for the past 30 summers at Gothic, to figure out the consequences and requirements of body size in different birds. Calder, who is a professor of biology at the University of Arizona, is a lean, energetic 65-year-old with a gray Vandyke beard, a beaky nose, and thin lips framed by deep furrows arching down from the corners of the nose. He tends to flit from subject to subject, and he is relentless about his work. The Calders' cabin at Gothic is 9,500 feet above sea level, and even in July strips of snow in the high draws still send rivulets and waterfalls down the gray flanks of the Elk Mountains. It's a good location to study hummingbirds, although as a genus they are basically tropical. Hummingbirds are a New World family (the sunbirds of Asia and Africa are only superficially similar), and more than half the roughly 320 species live near the Equator.

But hummingbirds are also opportunistic. They will fearlessly investigate any potential food source. This is why Calder once got kissed by a hummingbird: "I was out there working with my mouth open—I was always a mouth-breather—and a hummingbird flew up to me and put her bill in, and I actually felt her tongue on my tongue."

Hummingbirds also routinely explore new habitats, because the cushier habitats quickly fill up with other hummingbirds. Thus some equatorial species have evolved to live high up in the Andes, and other species migrate 500 miles across the Gulf of Mexico, or down the Rocky Mountains from Alaska to Mexico. But why travel the colder mountains instead of, say, the plains? Calder indicated the swaths of yellow, violet and red wildflowers, which lay like veils across the green foothills above Gothic: "Abundant flowers in a compressed growing season," he said.

In fact, hummingbirds seemed to be everywhere on the slopes around the Calders' cabin. Broad-tail males perched on high branches and electric wires, each fiercely guarding a feeder or a patch of flowers. One of Calder's students found that a male broad-tail at a feeder typically flies more than 40 sorties an hour to drive off rivals. Roughly another 45 times an hour, he shoots 60 feet straight up in the air and back down in a gaudy courtship power dive, his wingtips giving off a metallic trill, urgent as a bicycle bell. This is incredibly taxing. A hummingbird's heart beats more than 1,200 times a minute in flight; his wings hum at 2,280 revolutions per minute.

And yet, even with a patch of succulent flowers at his feet, a male broad-tail actually eats very little for much of the day. A full belly would give him the aerodynamics of a lumbering old bomber, reducing his abil-

ROBERT A. TYRRELL; PETER MCBRIDE

A berylline (top left) displays its tongue, which is controlled by muscles on the back of the head (left). Above: A female broad-tailed attends to her gaping chick.

ity to chase rivals and display for females. So he waits till dusk, then goes on a 20-minute binge, hitting flower after flower until his crop sags and his weight balloons by a third with the fuel he needs to survive the frigid night. Then he abandons his territory and, contrary to our expectations, flies uphill. Thermal inversions make the mountains about five degrees C warmer at night than the valleys, and the males know where the warmth is. Given the speed with which small bodies lose heat (think of a spoonful of soup versus a full bowl), such subtle adaptations can save a bird's life.

The females, meanwhile, tough it out in the valleys with their offspring. But they've also evolved tricks for surviving harsh mountain nights. In a stand of evergreens and aspen not far from his cabin, Calder pointed out a female broad-tail's nest on a branch overhung by a higher bough in a spruce tree. The bough, he said, serves as a roof over the nest, reducing nightly heat loss. The nest itself was about the size of a baby's fist, flecked with bits of green lichen for camouflage. The female weaves it together with spider webbing. Hummingbirds may also insulate their nests with down or the feathery white aspen seeds that sometimes drift through the valley like a snow flurry. But the female's last resort against cold is torpor: if she doesn't have enough energy to get through the night, she can turn down her thermostat, cutting her body temperature in half. In torpor, her metabolism slows two to three times for every 10 degree C drop in temperature.

The female at this particular nest was a small mousy broad-tail with a mottled green back, and she welcomed her human intruders by perching on a nearby branch, twitching her head from side to side, and screaming *chip-chip-chip*. It made her visitors feel faintly ashamed, like being scolded by a mother for waking the baby.

Calder backed off, and the broad-tail returned to the spruce tree in stages, pausing in midair and glancing around, as if to make sure she was not being followed. She began to feed, hovering in the air around the nest with her head cocked, then zipping up, down, left and right, seizing gnats with her bill. Despite their reputation as nectar-sippers, hummingbirds routinely get their fats and proteins by eating insects. When she'd filled her crop, she perched on the rim of the nest, and her two nestlings rose up in a flurry of soft feathers and gaping maws.

What happened next was appalling: the mother stuck her bill halfway down one nestling's throat, as if she'd mistaken her baby for a sword-swallower. Then she started jabbing up and down like a sewing machine. "That much bill and that little chick," Calder mused. "I'm always afraid she'll overshoot." She was regurgitating food and literally packing it in, to get her youngster to eight times its hatch weight in just two weeks. When she was done, she swooped away from the nest, *chip-chip-chipped* some more and hovered close enough that her human visitors could feel the turbulence from her angry wingbeats on their faces.

WENDY SHATTIL/BOB ROZINSKI

The ancestors of hummingbirds probably started out feeding on tiny insects around flowers, and only incidentally got their noses into the nectar. But they took to flower-feeding like a small child to lollipops. Hummingbirds and certain flowers have subsequently adapted in all kinds of weird ways for the blissful moment or two when they come together. In the Andes, for instance, certain passionflowers have developed an elongated tube-like shape. Local hummingbirds in turn have evolved four-inch-long swordbills for reaching deep down to the nectar at the bottom of the tube. When they finish feeding, the hummingbirds inadvertently carry a dusting of pollen on their bills and heads and deliver it to fertilize other passionflowers, sometimes miles away. The birds are the flowers' primary pollinators.

Hummingbirds have also evolved incredibly long, specialized tongues. If you hold a hummingbird in your hand and offer it a feeder, you can sometimes see the white flickering of the tongue entering the feeder hole just ahead of the bill. If you blow gently on the bird's head feathers as it feeds, you can actually see the tongue muscles pulsing under the translucent flesh at the back of the skull. This may seem anatomically unorthodox. The tongue itself fills the hummingbird's bill, so the muscles that support the tongue actually run back around the spinal cord, up the outside of the skull and over the top, to be anchored between the eyes. In some species, the tongue is fringed along the outer edge, which may help entangle insects. In some, the tongue ends in two troughlike channels, with which the bird draws up nectar—not by sucking but by capillary action—as the tongue flicks in and out. While the human spectators are whooping and dooping, the hummingbirds, in Calder's words, are wicking and licking.

So far, this is pretty straightforward. But as the relationship between flowers and hummingbirds evolved, certain mites figured out how to get in on the party. These tiny relatives of ticks and spiders eat nectar and pollen, and each mite species has evolved to feed on particular species of flowers. Getting from one flower to another can be a problem—especially given that mites are blind and may specialize on a bromeliad 100 feet up a tree in the middle of a rain forest. So the mites have evolved to use hummingbirds as their C-47s.

Sooner or later a hummingbird will show up to feed on the flower a mite has been busy plundering. Then, according to University of Connecticut biologist Robert Colwell, who first confirmed the phenomenon, the mite sprints up the hummingbird's bill and hides in its nasal cavity. The hummingbird doesn't seem to notice the stowaway. Colwell has found as many as 10 or 15 mites per bird, and because a hummingbird typically feeds on many different flower types, the mites have at times belonged to as many as five species.

The mites are only along for the ride to the next preferred flower. Colwell describes them as "perpetual airline passengers that carry out all their mating and feeding in airport lounges." They apparently decide which flower is Gate B7 by the floral scent sucked in four times a second on the hummingbird's breath. Getting off at the wrong flower can mean death for the mite. But it must make its decision instantly and move quickly, because hummingbirds spend only a few seconds at any one flower.

Almost everything else about hummingbirds is adapted to the flower-loving life, most notably their method of flight. They need to stop and hover precisely enough to extract nectar from each flower. Relative to their size, they have the largest flight muscles of any bird, up to 30 percent of their total weight, anchored to a keel-shaped sternum. They've also got twice as much heart as might be expected for their size, and a denser concentration of red blood cells for better oxygen storage. Their wings are short, and the bone structure is nearly all hand; they have an extremely short humerus, ulna and radius, the equivalents of our upper and fore arm. But unlike other birds, hummingbirds can rotate their wings in a figure eight—much as our wrist enables us to rotate a hand—due to their remarkably flexible shoulder joints.

Hummingbirds and certain flowers have adapted in all kinds of weird ways for the blissful moment or two when they come together.

When a hummingbird is hovering, its wings flap through the air horizontally, rather than up and down. As the wing sweeps toward the front, the leading edge rotates forward, for lift on the downstroke. Then, as the wing sweeps to the rear, the leading edge rotates back, for lift on the upstroke too. Other birds, with their up-and-down flapping, get lift only on the downstroke. But the hummingbird's flexibility enables it to hover, back away on the wing, even fly nearly upside down. One reason hummingbirds sometimes drive off hawks and other birds a hundred times their size is that they can outmaneuver them.

Hummingbirds are also smart

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Yellow pollen tints the head of a female broad-billed foraging a wildflower in an Arizona canyon. Evolution has modified many plants for hummingbird feeding.

enough to know where to fly—and where not to. One evening outside the Nordic Inn in Mount Crested Butte, a few miles down the valley from his cabin, Calder drove long stakes into the ground and set up a mist net, which is like a portable spider web, 7 feet high and 36 feet long, creating an obstacle to reaching a couple of feeders hanging from the eaves of the hotel. The Nordic has been putting out these feeders for the past 30 years, and migrating hummingbirds have come to count on the service. In spring, the hotel is one of their base camps, for forays to test if the wildflowers are blooming yet at higher elevations. If the owners forget to put out their feeders in time, the first hungry hummingbirds to arrive raise holy hell. It's a common experience among birders: hummingbirds not only get from Mexico to Alaska and back, but appear to remember flower patches and feeders on route. One biologist complained that hummingbirds continued to show up at a regular feeder site for two years after she stopped putting out the feeder.

"All that memory in a brain case as big as Abe Lincoln's head on a penny," Calder said. But relative to body weight, the hummingbird's brain is actually bigger than ours, and hummingbirds are also shrewd enough to adjust to changing circumstances. As Calder talked, a broad-tail came whirring in and stopped in midair to contemplate the almost invisible mist net that now separated him from his feeder. Then he flew straight up, like a helicopter, over the top, and straight down to the feeder.

What's more remarkable is that hummingbirds actually remember individual flowers over the course of a day. They also seem to make decisions about when to revisit a flower based on how quickly it can replenish its nectar supply. One morning back in Arizona, Susan Wethington, a Ph.D. student at the University of Arizona, set out a rack of 16 artificial flowers with differing rates of replenishment. Some stayed empty, some refilled slowly, some quickly. A black-chinned, humming through on his second visit of the day, consistently hit the fast-replenishing flowers and skipped the empties. This sort of behavior has earned hummingbirds the reputation, among scientists, as "nature's greatest efficiency experts."

Hummingbirds are also smart enough not to stick exclusively to red flowers. Their legendary fondness for the color may actually be one of the great myths about how animals divvy up a resource. According to the classic ecological explanation, flowers evolving for pollination by hummingbirds tended to shift toward the red end of the color spectrum, because bees and other pollinating insects can't see red very well. But Nick Waser, an ecologist from the University of California at Riverside, whose cabin in Gothic is just up the road from Calder's, dismissed this as "a great story to teach undergraduates."

Studies have shown that bees are capable of seeing red (although less well than other colors), and hummingbirds can learn to respond to

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Duelists spar for possession of a branch. Fiercely territorial, hummingbirds fight often but seldom inflict serious harm on an opponent.

any color. They are not interior decorators. What they want is nectar, they want it now, and they will concentrate on whatever color flower happens to be giving it to them at the moment. Moreover, hummingbirds will visit bee flowers, and vice versa. So why do hummingbirds turn up so often on the abundance of red flowers in the American West? One possible explanation, in Waser's view, is that red may simply stand out better against a green background.

Specialization, said Waser, isn't what got hummingbirds where they are today, or where they are going to be. (Anna's hummingbirds have lately expanded their breeding range from California into Arizona; rufous hummingbirds have launched an invasion of the Southeastern United States.) On the contrary, hummingbirds are the ultimate opportunists.

"They're just such ballsy birds," Sheri Williamson was saying one afternoon outside Sierra Vista, Arizona. "There's somebody in there. You look in some other bird's eyes and it's like looking in the eyes of a cow. But hummingbirds are so aware of what's going on."

Williamson, who runs the Southeastern Arizona Bird Observatory with her husband, Tom Wood, was conducting her weekly hummingbird banding session at the San Pedro Riparian National Conservation Area. They had a feeder set up, enclosed in a mist-net tunnel, which was closed off at the end. Wood, a 50-year-old with a big gray beard and a contented red face, stood at a distance. When a hummingbird came to the feeder, he lumbered toward the entrance and tried to panic the bird into the netting. Sometimes it worked.

When Wood caught his first customer, a young black-chin female, he took her over to Williamson. After banding the bird, she wrapped it in a scrap of cloth "like a birdie burrito." The wrapping calmed the bird for her weighing and medical exam. Williamson blew on the feathers to examine the fat content beneath the tissue-thin skin. "She's already been in the first fight of her life," Williamson said, "because she's missing one of her tail feathers." Then, the examination finished, she held her up to a feeder. "This is like juice and a cookie at the blood bank," Williamson said. "We're just trying to pay her back a bit."

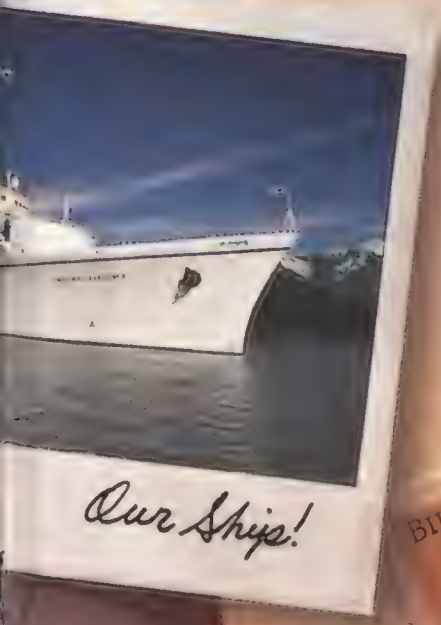
When Williamson later held another hummingbird to the feeder, it guzzled sugar water till its crop swelled goitrously at the back of its neck. In a couple of minutes of feeding, its weight went up by a third. Williamson placed the bird in a visitor's hand to be released. It sat for a long time, unperturbed, its body thrumming, not with its heartbeat ("That's too fast for you to feel," Williamson said) but with its usual 250 breaths a minute.

The hummingbird blinked and looked around calmly with its glossy black eyes, lord of all it surveyed. Finally, it shuttled off in a rush, leaving behind, as a warm token of disregard, a droplet of urine in the hand that had cradled it. Williamson was ecstatic. "Aren't they just wonderful birds?" she inquired.

A frequent contributor, the author has written recently on the travails of Britain's hereditary peerage and a Hartford BioBlitz.

WENDY SHATTIL/BOB ROZINSKI

Kodiak Bear



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The monster mountains scrape the sky,
where eager stars are diamond-bright."

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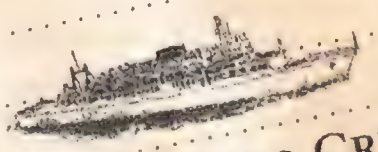

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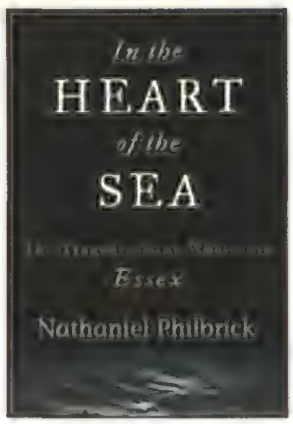

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Dancer Kimm E. Ward looks carefree despite the chilly spray from Yosemite Falls and the 2,500 feet between her and the valley floor.

Dancing on Air

WITH NYLON ROPES AND STEELY NERVES, PROJECT BANDALOOP PERFORMS HIGH ABOVE THE CROWDS

By Heather Millar

YOSEMITE FALLS, CALIFORNIA — One thing's for sure: it's not like this at Lincoln Center. Just before their first performance, the troupe readies "backstage" on a curved shield of gray granite: five dancers, all smooth muscle, gossamer costumes and mountaineering gear. Some check their harnesses. "Hey, this webbing is twisted. Do you think it's dicey?" says one. Another sees a tiny tear beginning in a leg loop. "Hey! Do you have some duct tape? Make my day, man!"

One of the men, already geared up and dismayed by the costumes' fey gauziness, pulls a carabiner from his harness and holds it up to his mouth like a Star Trek communicator. "Kirk to *Enterprise*: ready to beam up. Get me off this neurotic planet!"

Joking, stretching, shivering in the alpine wind, they double-, triple-, quadruple-check everything until it is pronounced "bomber," safe as possible, good to go.

"Guys, it's really time."

One by one, the dancers clip their harnesses onto nylon ropes and, with climbing gear jangling, shuffle backward over the fine scree, toward the edge of this 2,700-foot cliff. Then they leave the horizontal world behind.

They slide 200 feet down the ropes to the "dance floor." It's a dance wall, really, a patch of sheer granite just east of Yosemite Falls. There, they turn the world upside down. Or at least they cant it upward 90 degrees. The dancers push out from the rock. With the resulting few seconds of air time, they arabesque, flip and twirl, as graceful as the swifts that spin and soar on the wind around them.

A few hundred yards west of the dancers, at a lookout point above the falls, a young woman tourist gasps, "They are crazy! They are dancing?" Handing back borrowed binoculars, she says, "Ahhh. I cannot close my mouth. I cannot believe it."

The dance company Project Bandaloop has inspired similar reactions from audiences worldwide. So it was again in early June, when they camped for a week in the Yosemite wilderness to videotape dance segments for a new work commissioned by the Wolf Trap Foundation for the Performing Arts. The film will premiere September 8 at Wolf Trap's Filene Center in Virginia, as part of the first performance in an annual "Face of America" series. The Yosemite footage will be shown on supersize screens while the Banda-

Photographs by Peter McBride

loopers dance live, both in the air and on the ground, to new music by flutist Robert Mirabal.

"We're trying to combine natural history with cultural history," says Terrence D. Jones, the Wolf Trap Foundation's president and CEO. "Bandaloop's unique use of contemporary dance movement within the natural environment struck me as a perfect platform for launching 'Face of America.'"

Amelia Rudolph, 36, Bandaloop's founder and artistic director, began work on *Luminescent Flights* months before the Yosemite shoot. "We started the ground choreography before we got the music, with ideas and concepts," Rudolph says. The wall work did not begin until April, when the troupe rehearsed at Wolf Trap.

The touring company comprises six dancers and two people who do technical support and rigging. The riggers set the anchors that secure the ropes, and make sure all the lines will hang free. The dancers, who wear standard climbing harnesses, rely on these ropes during hours of rehearsing and performing, so everything must be "backed up," and sharp edges must be padded.

No one ever said dancers are soft, but the Bandaloopers have to be made of iron. Clipped into only a thin piece of rope, they use Grigris, newfangled self-locking belay devices, to descend and to maintain their positions. When they need to move back up, they use mechanical ascenders that lock onto the ropes and slide up but not down. It's an exhausting way to gain elevation.

Then there's the dancing. With several performers hanging on long ropes, flipping and arabesquing, it takes unique skill and training to avoid midair collisions and tangled lines.

Choreographing a Bandaloop piece requires equal parts meticulous planning and improvisation, and Bandaloop performs in a dizzying variety of environments: the Seattle Space Needle, Pacific cliffs in California's Marin County and the Vasco da Gama Tower in Lisbon, Portugal. It's difficult to know what will work until you have "hang time" at the site, Rudolph explains. Is it windy? Is there lots of space to land, or just a column or pillar?

On the last day of May, Rudolph stands on the roof of a crumbly, broken-down residence hotel in San Francisco's Tenderloin district, what passes for "inner city" in this prosperous, pastel town. In two days Bandaloop will perform for the San Francisco Street Theater Festival. Rudolph is using this opportunity to work out, as much as possible, the Wolf Trap wall choreography. Ropes are anchored to stairwell and lightwell housings, to everything in sight. Rudolph is all business, intensely focused. She turns, offers a quick smile and a hello. She leans against a roof cornice that looks none too sturdy. "It's the best wall

Heather Baer and Chris Clay perform a duet in the wind. The metal object with yellow tape on Baer's rope is a Grigri. It holds the rope tight, but a backup knot, silhouetted near Baer's hip (opposite), is a good idea.

I could get," she says. "People freak out about the liability."

Leaning farther out, she calls down to the four dancers below. "Wait. Do that again! I love that." They've dubbed this new move "The Matrix." It's a duet: one dancer pushes away from the wall as far as possible, and the other "runs" across the wall underneath. They clasp hands and flip around, back to the wall. "Great! Do it one more time! It's getting better, but on the landing, use your arm strength."

While plenty of dance companies do aerial work, performing a few dozen yards up with bungee cords or other equipment, none dance hundreds, or thousands of feet in the air as Bandaloop does. This beautiful, nutty idea of combining dance and mountaineering evolved slowly for Rudolph. Trained as a dancer since the age of 6, she won awards for her choreography while a student at Swarth-

more College and has performed with many more-conventional companies. Rudolph began climbing when she was 25, after visiting Tuolumne Meadows in Yosemite. One day while climbing near Berkeley, she was struck by the similarities to dance, how centering her body and keeping fluid were more important than just clinging to the crags.

Rudolph enlisted some of her dance friends and walked into CityRock, an indoor climbing gym in Emeryville, California. She asked owner Peter Mayfield, "Hey, can we play on your wall? Try stuff?" A few gym regulars saw what they were doing and asked if they could play too.

As this loose coalition of dancers, gymnasts and climbers evolved into a company, Rudolph dubbed them Project Bandaloop. She chose "Project" because she wanted the group and the dance to constantly evolve. Borrowed from Tom Robbins' novel *Jitterbug Perfume*, "Bandaloop" is a dance that grants immortality to those that perform it.

It's been nine years since their first sold-out shows at CityRock, and although there has been some turnover, the troupe has become a tight-knit family. Climber and rigger Steve Schneider, eternally blond, tousled and laid-back, married pixieish dancer Heather Baer by the beach at Tuolumne Meadows. The reception got so boisterous that the Hell's Angels in the next campsite called the park police. Rudolph tirelessly promoted the group, booking gigs with corporations like Reliant Energy Power of Houston and W. L. Gore and winning many arts grants. Eventually, Rudolph was able to work for the dance company full-time, though everyone else kept their day jobs.

Today, Schneider and Rudolph are standing in the Bandaloop camp, preparing for the Yosemite filming. Camp, a quarter mile in from the falls, consists of a "Mother Ship" kitchen tent, a granite outcropping that serves as a countertop and a string of backpacking tents scattered through the forest. Thomas Cavanagh, the operations manager brought in three years ago when Bandaloop's touring schedule and projects grew more complex, joins them. Cavanagh, who wears a headset and a chest harness bristling with phones, walkie-talkies, wires, and a watch, leads the morning rigging meeting. During a radio-intensive gig in Banff, Canada, the troupe started using radio handles with a dog theme. Cavanagh was dubbed "Blue Dog Leader," after a character in the seventies television show *Black Sheep Squadron*.

"We had woes and triumphs yesterday," Cavanagh says. "But at least we have a clear idea of how we move into the next step. We want to make sure that Amelia and all the dancers are comfortable."

Several issues loom: Rudolph wanted five dancers for the film; only four ropes got rigged yesterday. Also, the ropes fall only six feet apart. Hanging that close, dancers doing duet work will kick each other. They need to be spaced out. The big issue this morning, though, is bolts.

Decades ago, Yosemite climbers placed bolts, metal wall anchors similar to what you'd buy in the hardware store, in the rock whenever it suited them. As the sport evolved, people worried that the bolts, which require specially drilled holes, defaced the rock. A consensus grew that bolts should be placed only when absolutely necessary. Bandaloop has never before bolted a rock face for a performance.

Unfortunately, bolts seem to provide a perfect solution for this venue. The cliff is dome-shaped at the top, sloping gently downward, until, after 100 feet, it steepens to vertical. Ropes anchored at the top will rub against all that curving granite, and friction is enemy number one to a climbing rope. However, if new anchors—the bolts—are drilled just above the dance floor, the friction problem would be eliminated.

"This is wilderness," says Rudolph, a strong environmentalist. "I definitely push for not doing it, but also I don't want to compromise safety."

Schneider briefly sheds his relaxed, wow-dude, California

Before the Bandaloopers could perform, rigger Steve Schneider had to climb Yosemite's Lost Arrow Spire to get the ropes up there.

demeanor and turns serious. "A bolt would make it safer," he says again and again. "I'm pro-bolt."

Bolts it is. Park rules dictate that the holes be drilled by hand, and Rudolph insists that when the dancing is over, the bolts will be pulled and the holes filled with epoxy and rock dust. With their new orders set, Cavanagh, Schneider and the other riggers hike off to the dance site.

At three that afternoon, Rudolph shows up at the top of the cliff to try out the new rigging. Cavanagh greets her by her radio handle, "Queen Dog Looping," and maintains his vigil, checking the ropes constantly, radioing porters hiking up with supplies, arranging dinner, making sure there are fresh batteries for the cameramen. Rudolph clips in and descends. An hour later, she reappears wearing a huge grin.

"It was great!" she exults, and then admits, "It was terrifying. My autonomic nervous system is saying, 'No! No! You are doing something that could kill you. Get onto horizontal ground right now!' Meanwhile, my brain is saying, 'It's OK. It's OK. Look how pretty it is. Relax!'"

Two days later, after more rigging, planning and rehearsing, the first day of filming dawns. Walkie-talkies crackle with chatter. "This is Blue Dog," Cavanagh radios to the dancers and film crew dangling below. "I'm sending down a lunch bag and a battery. Give me a head count on who's having lunch with a view."

Schneider, rigging a second dance site at Lost Arrow Spire nearby, radios another rigger, "This is Blond Dog. I need more rope. Cappy, Happy Dog McTwisty. You got one?"

A few minutes pass, then Rudolph: "Queen Dog Looping to Blue Dog."

"This is Blue Dog, go ahead."

"We're wondering if you could set things up so that we could get everybody back in, if you think we're all ready."

Soon they are dancing again. Rudolph's voice reaches from the dance floor to the lookout point across the falls. "One, Two, Three, Four. Maaatriiiix." The dancers push out, and their partners run under and flip them around. Just like in rehearsal only now it looks effortless, as if they were bits of light, floating on air.

The Wolf Trap cameras aren't recording sound, so the dancers whoop it up, "Whooo! Yeeaah!"

Another group of tourists at the lookout point gasp, shake their heads and ask to borrow binoculars. Nope, this sure isn't Lincoln Center.

Heather Millar grew up hiking in Yosemite. Peter McBride recently relocated to the canyons of New York City.

Portaledges hold Schneider as well as climbing gear, water and warm clothes for the dancers below.

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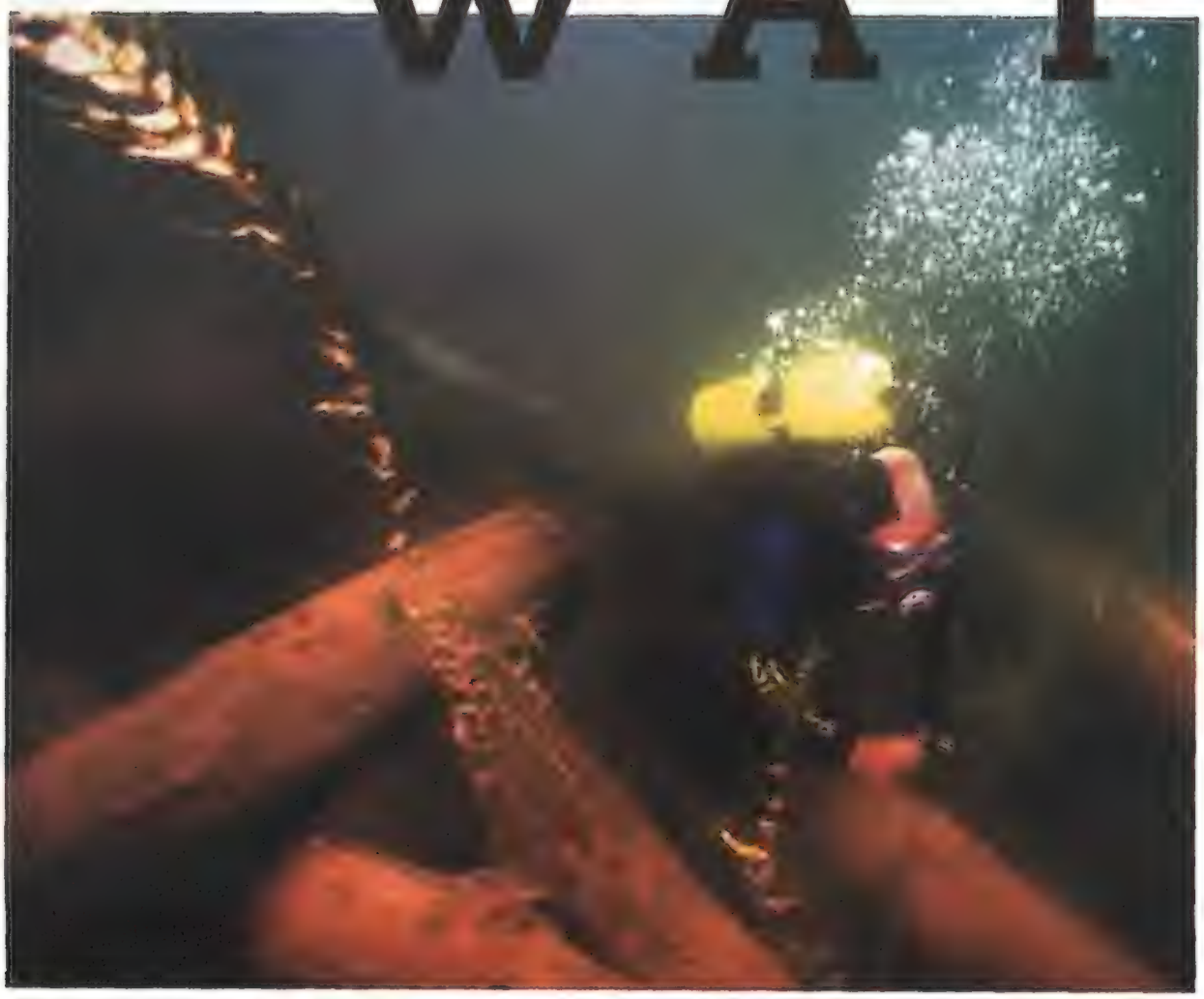


When people lined up for his autograph, Scott Mitchen (above, in Lake Superior, and right, on recovered logs) just laughed. "I didn't cure cancer—I found wood," he says.

AFTER MORE THAN A CENTURY ON THE BOTTOM OF LAKE SUPERIOR, A SUNKEN TREASURE OF OLD-GROWTH WOOD COMES ALIVE AGAIN ◆ **BY JULIE WAKEFIELD**

SCOTT MITCHEN STARES INTO THE STEELY EXPANSE OF LAKE Superior's Chequamegon Bay. His bobbing snub-nosed boat sends concentric ripples across the smooth water. Suddenly, a patch of water roils furiously and then explodes as a massive log pops up end first from the depths. "This log is breaking the surface for the first time in more than a hundred years," Mitchen exclaims, scurrying to the side of the boat to inspect the end of the 16-foot-long piece of oak. The possibility that hundreds of thousands—if not millions—of ancient logs just like this one are slumbering in the Great

PHOTOGRAPHS BY LAYNE KENNEDY

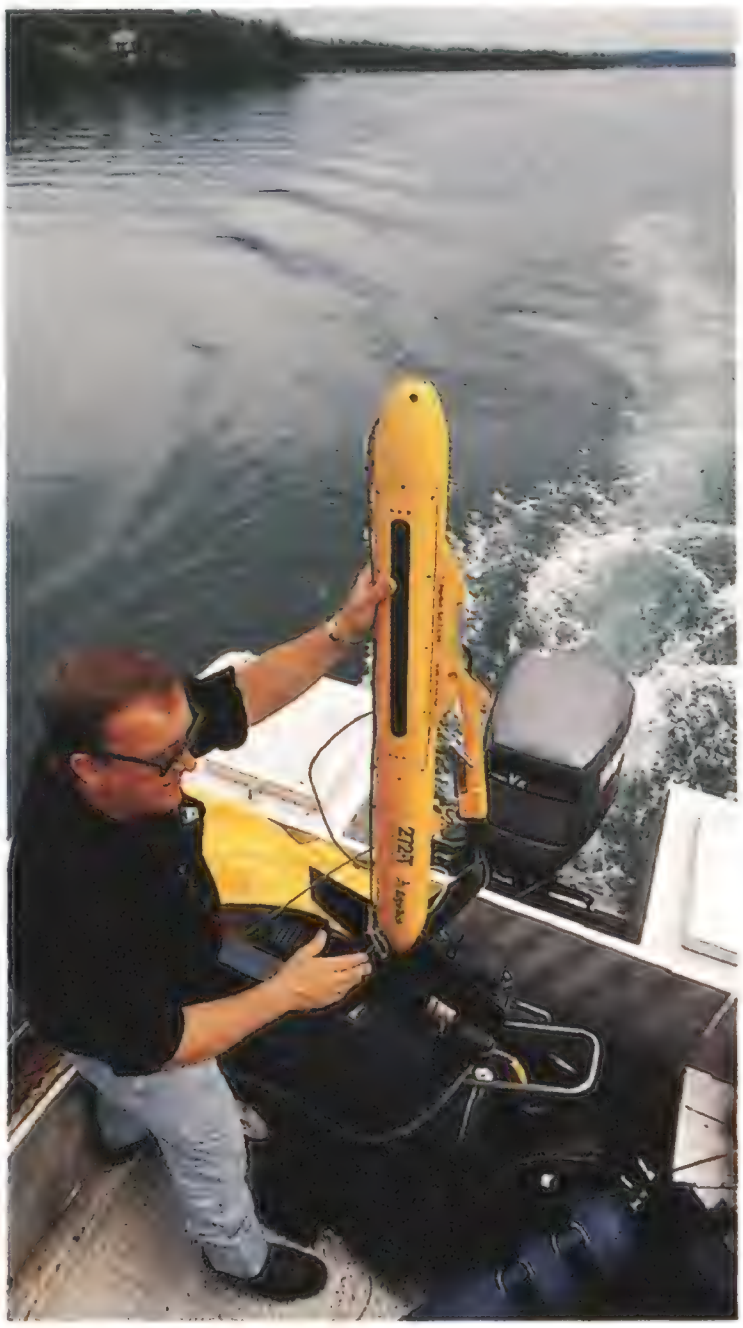
LOGGING

Lakes keeps the affable 42-year-old in a permanent state of excitement.

Speaking on an underwater telephone line from some 30 feet below the surface, a diver tells Mitchen that he has readied the next log. Most of these old giants became waterlogged and sank to their cold netherworld during logging's heyday in Wisconsin between 1870 and 1910. Vast rafts of logs floated for months, even years, while awaiting the saw at one of the mills that then necklaced Chequamegon Bay. "Back then, they thought the forest was inexhaustible," Mitchen explains. "It was easier to go cut down more trees than to worry about the 10 percent or so of the logs that sank."

The lake bottom's low oxygen content and its freshwater have preserved the forgotten logs well, as Mitchen discovered in 1989 when he raised his first submerged log with an inflated inner tube from a truck tire. When he cut the log open, he saw the inside glistening with the warmth of a much-loved antique. "It was like finding a doubloon dropped off a Spanish galleon," he says.

What makes the wet wood worth the extra trouble to harvest is its uniqueness. In the forests seen by early American lumberjacks, seedlings faced stringent competition for sunlight and nutrients, and trees matured slowly over hundreds of years. Like its counterparts salvaged from old structures, the antique wood, some up to 800 years old, boasts many times more growth rings than modern plantation wood—sometimes as many as 75 rings per inch. This tight grain is highly desirable, and a log with it may fetch tens of thousands of dollars at market. As it is, the average price of a salvaged log is about three times that of an equivalent hardwood log harvested today. With highly figured pieces going into custom furniture, flooring, paneling, veneers, handcrafts and musical instruments, Mitchen decided to reclaim the submerged old-growth timber—and perhaps return some attention to nearby Ashland, Wisconsin, once at the heart of the region's logging industry.



Sonar expert Bob Nielsen uses sound waves emitted by this "tow fish" to scan the lake bottom.

It's not a bad bet. Wood from Lake Superior has already wound up in Calgary's Saddledome stadium and a guitar strummed by singer Johnny Cash. Indeed, such harvesting has dredged up the long-standing hopes of many instrument makers: finding wood that yields sounds comparable to those of Antonio Stradivari's legendary violins. The company Mitchen founded, Superior Water-Logged, keeps searching, hoping the next primeval log will provide the wood for the perfect violin.

In the meantime, entire underwater timberlands, by Mitchen's calculation, await excavation. Mitchen, a Milwaukee native who started diving in his early teens, first stumbled across the logs while treasure hunting for Lake Superior shipwrecks before he made his first major find, a pirate ship, off the Virgin Islands. Working beneath the surface of one of the world's largest bodies of freshwater is nothing like Caribbean reef diving, however. "Everything is gray," says Mitchen.

Thanks to imaging sonar, the divers usually can find and descend to clusters of logs at depths of about 30 feet. There, the visibility averages 15 feet. "The logs appear like apparitions ahead of you," Mitchen says. "When I go down, it's like stepping back in time." As salvaging begins, and the divers stir up the bottom, visibility can drop to close to zero.

So far, Superior Water-Logged has recovered around 5,000 logs from Lake Superior. Mitchen raised two-thirds of those himself. "Working underwater is an art in itself," says Mitchen. Underwater, divers can move semibuoyant logs, even though they might weigh tons at the surface. The divers often risk overexertion trying to finish jobs before their air runs out.

Back onshore by the bay, the sweet smell of sawdust wafts through a once condemned set of warehouses.

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As Scott Mitchen watches, a log raised by inflatable air bags bursts through the surface of Lake Superior (above). End marks (right) denote the mill it was destined for in 1879.

In one, a warm kiln filled to capacity slowly cures wood. In another, forklifts move huge logs and pallets of finished goods. "Do you smell that?" Mitchen asks. As we enter a large warehouse, a putrid odor permeates the air. This building is chock-full of logs stacked 20 feet high. Supersaturated with moisture, the wood must first be sawed, then kiln-dried from 45 to 90 days before it can be transformed anew.

Under closer examination, the logs bear marks of their origins. If a log was felled by axe, it likely predates 1870. After that, two-man, crosscut saws—the fabled "misery whips"—came into use and predominated for many years until the advent of the chain saw. Many old logs also display original end stamps: imprints or distinctive cuts, the equivalent of cattle brands or bar codes, used by lumberjacks from various companies to sort logs after they had been floated to the mills.

Today, the stamps are the best clues for tracing who cut the log and when. That's because most logging outfits and their imprints lasted only a few years. Around Ashland, about 2,600 different imprints appear.

"Do you see this mark?" Mitchen says, pointing to one with an unusual cross shape. "It's the king's stamp, which means it was cut around 1760 for use by Britain's Royal Navy." Logs from this era were often squared off like beams for compact stowage in Europe-bound ships.

"Sometimes I miss the days when people thought I was crazy for going after this wood, because no one bothered us," Mitchen continues. Unlike the freewheeling early days, logging rights on parcels of 40 to 160 acres in Lake Superior now must each be approved by a host of state and federal agencies, including the U.S. Army Corps of Engineers and, in Wisconsin alone, the Board of Commissioners of Public Lands, the Department of Natural Resources and the State Historical Society. So far, Superior Water-Logged has received roughly 40 permits for Lake Superior, with another 200 still pending. Conflicts with Native Americans have also stalled underwater logging in the Ashland area. The U.S. government, through the Army Corps of Engineers, has intervened to address treaty rights.

Even with these delays, the mill's saws are still humming, for its log salvaging extends from the chill depths of Lake Superior to Canada, Brazil

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Stacks of saturated wood slowly dry in Superior Water-Logged's kilns. Lasting anywhere from 45 to 90 days, the curing process makes the salvaged wood usable.

and beyond. This year, the company plans to process 1.2 million board feet of salvaged logs, only a small portion of which will come from the lake. (By comparison, the state of Wisconsin alone produces 650 million board feet of conventionally harvested timber a year. A board foot is one foot by one foot by one inch.) Much of Superior Water-Logged's reclaimed wood pours into this Ashland mill by truck and train after underwater retrieval from all over Canada and the United States—including cypress from Georgia and Louisiana and ponderosa pine from Idaho.

Despite the high prices that some salvaged logs can command, Superior Water-Logged has not yet reaped a profit. Company president David Neitzke explains that an enterprise like this takes extra time and money. Unlike conventional timber, he notes, most submerged logs must be handled individually from water to mill, requiring greater expenditure per board foot. And while consumers might often desire a steady supply of a given species and grade of wood, Neitzke says that his is not an unlimited, easily obtained resource.

Now, as Scott Mitchen inspects a newly arrived train car of logs from Canada, he gets excited. One log in particular catches his eye. "Fiddle, fiddle, fiddle!" he chants happily. "Look here!" He points to a three-foot-wide maple with odd external markings. The log, he explains, is likely to be a type of maple that has a three-dimensional or iridescent look commonly referred to as curly, or tiger, maple. The best of that class is referred to simply as "fiddle" or "fiddleback," as it is prized as a distinctive-looking back and neck for violins. Perhaps 20 violins could be made from a log of this size, Mitchen estimates. Most likely these instruments will not produce sounds as sublime as those of a Stradivarius. But candidates like this arrive often enough to encourage the treasure hunter in Mitchen.

Of course, all that lies in the deep is not treasure, as Superior Water-Logged's sonar expert Bob Nielsen knows well. Finding valuable pieces of submerged wood entails a mix of research, adventure and high tech. First Nielsen researches locations of long-closed mills and railroad spurs, then studies aerial data.

"Before I go out, I learn the history of the area and talk to local people," Nielsen says from the stern of his survey boat as he drops a torpedo-shaped imaging sonar sensor into Lake Superior. In side-scanning, the "tow fish," as this four-foot-long

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device is called, shoots out sound waves at 45-degree angles to determine what's down below.

Inside the boat's cabin, computer screens dominate the space, displaying electronic images. A printer continually spews out the sonar track of a parcel of the lake floor the size of a football field. With the side-scanning sonar, differential Global Positioning System data can pinpoint a log's location within a few feet.

Today, the system immediately locates a large fish. But then jackpot: logs are scattered everywhere, piled willy-nilly like pick-up-sticks. Though the imaging sonar makes the lake transparent, its resolution isn't good enough to distinguish valuable hardwoods like red oak and sugar maple from the cheap pulpwood that litters the bottom and is hardly worth the cost of salvage. That's where the divers come in. Keeping up with the boat with underwater scooters and talking to Nielsen via telephone cable, they survey the find.

To retrieve logs and minimize diver exertion, Nielsen usually uses two barges equipped with cranes and hydraulic winches. Within about 30 seconds of discovering a suitable log, a diver hammers an eyebolt into it, clips on the cable and signals the crane operator to lift the log and hoist it onto the barge.

Nielsen compiles the results of his sonar and diving surveys in a small office on the top floor of one of the warehouses. Hanging on the wall is the result of his labor, a modern-day treasure map. It's actually two charts of U.S. and Canadian territory, focusing on the Great Lakes and the St. Lawrence Seaway. A flurry of pink and yellow Post-it notes are stuck all over the charts. Scribbled by hand on the notes are descriptions: "Dozens of maple and birch," or "6 red oak." Such detailed attention to areas sheltering small caches of logs reinforces how valuable each old log can be.

At the top end of the 12 species Superior Water-Logged sells is the highly figured wood that might ultimately be sold to artisans, interior decorators and instrument makers.

Woodworker Tom Richardson examines yellow-birch veneer. Not every salvaged log is suitable for such use.

Furniture makers find such wood desirable for antique reproductions. Leick Furniture in Sheboygan, Wisconsin, for instance, launched a limited edition line of red oak mission furniture made from salvaged oak logs. To make reproductions that would be as old-fashioned in their craftsmanship as in the rare qualities of the old wood, the company reworked production lines to incorporate traditional, though difficult, woodworking techniques, such as pinned mortise-and-tenon joinery.

Workers at Leick typically measure the salvaged oak three or four times before cutting. "You can't afford to make a mistake," says chief executive Gregory Leick.

It's up to cabinetmaker Mike Ziegler to bring Leick's designs of curio cabinets and consoles to life. The difference between working with submerged wood and conventional timber is "like night and day," says Ziegler, as he assembles a traditional pegged joint on a curio cabinet door. "This stuff is much harder to work with," he notes, explaining that the antique wood, with its tight grain, requires sharper tools and more tedious sawing and finishing techniques than regular, run-of-the-mill wood. After the piece is finished to his specifications, Ziegler will sign his creation. "You could give Mike a sketch on the back of a napkin and he could make it," claims Leick proudly. The extra effort pays off. The Ashland curio cabinet that Ziegler is making will retail for $2,500—at least twice the price that a similar piece made from conventional wood might fetch.

Like Ziegler, craftspeople relish working with the antique wood. "When you hold it and touch it and feel it in your hands, you just know it's different," says mill customer Joe Szabo. "Perhaps it's the history."

A Brookfield, Wisconsin, woodworker, Szabo specializes in intarsia, a 15th-century Italian art form. With intarsia, objects are created through a three-dimensional mosaic of wood; Szabo uses the natural color of the

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wood to produce recognizable patterns. Animals and flowers figure large in Szabo's repertoire, often made from what Superior Water-Logged calls its "sapphire wood." This submerged wood has absorbed minerals from the water, so it takes on hues no wood might otherwise have. Though some do not consider this mineral-stained wood desirable for furniture, as it will not easily hold a finish, its range of colors makes it ideal for Szabo's art.

Freshly cut premium hardwoods comparable to the salvaged timber are still commercially available in limited quantities, according to Terry Mace, a forestry marketing specialist with the Wisconsin Department of Natural Resources. "But they lack the same mystique." They also lack environmental cachet. Recently, in response to pressure from environmentalists who want to preserve old-growth forests, dozens of U.S. companies pledged to stop using or selling products made from such wood. Not surprisingly, Scott Mitchen applauds this trend. "Every old-growth tree we bring up probably saves at least two or three trees from harvest," he says.

About 300 miles south of Mitchen's mill, tucked away in a suburban Milwaukee workshop, master violin maker Scott Sleider toils away. One of only 100 people in the United States admitted into the elite American Federation of Violin and Bow Makers, he moves around his shop, tapping one piece of wood, then another, listening for the right pitch.

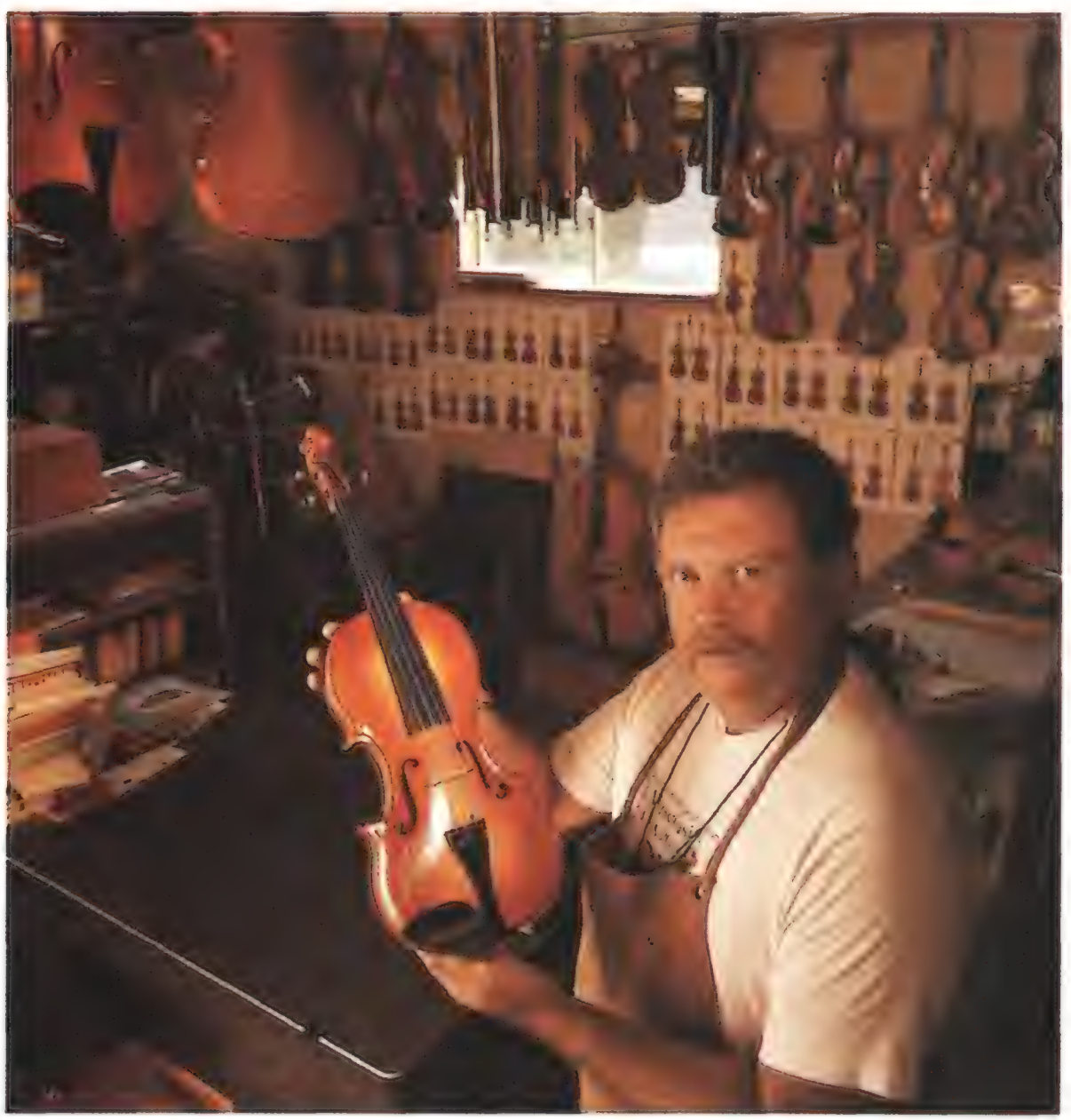
This is a man who is picky about materials. He examines horsehair for his bows under a microscope to ensure it comes from white horses of Manchuria. Usually, he uses maple from Bosnia and hazel pine spruce from two protected groves in northern Italy. It takes him about a month to form 84 handmade pieces into a finished violin.

This time, he is eagerly awaiting the arrival of a special maple recently salvaged by the company from Lake Superior. Like other violin makers around the globe, Sleider has expressed an intense interest in the recovered wood. Besides its warm look, musicians and craftspeople are finding that submerged wood possesses special acoustic resonance. The sound has already inspired custom instrument makers to craft everything from dulcimers and harps to assorted guitars and drums from this wood. The Drum Workshop in Oxnard, California, has launched a line of drums made from salvaged maple. Guitarists from rock groups like the Dave Matthews Band and the Allman Brothers Band have placed orders for custom electric guitars crafted by W. Paul Guitars from salvaged Lake Superior wood.

John Good of the Drum Workshop leans on bass drum shells of 500-year-old bird's-eye maple from Lake Superior.

Some musicians are hoping that the salvaged wood may prove especially valuable in re-creating the sound of the great violins of Stradivari and Guarneri. Most modern instruments simply don't reproduce the sound of the instruments made by these Italian makers of the 18th century. Experts believe the wood of Stradivari's violins was soaked in water. This would alter the wood's cell structure, changing its acoustic properties, explains Texas A & M University biochemist Joseph Nagyvary (SMITHSONIAN, October 1990). The scientist, who dreamed of becoming a concert violinist in Hungary before World War II interfered, has spent decades studying this great mystery of the music world. He suspects bacteria, fungi and even varnish play a role in making the wood of a Stradivarius unique.

Like Sleider, Nagyvary is waiting for delivery of more candidate maple. A few years back, he analyzed a piece of prized maple with a scanning electron microscope. But the sample was not large enough to determine how suitable it would be. Nagyvary explains that the grain needs to



Instrument makers Michael Hurlbut (above, behind a veneer of salvaged birch) and Scott Hootman (below) praise the musical qualities of recovered wood. Hurlbut's Native American flute is bird's-eye maple; Hootman's violin is maple and red pine.

remain tight over a six-inch stretch along the log's radius—to allow quartersawing or cutting perpendicular to the tree's growth rings for maximum strength—and to have the desired characteristics throughout. "You need 100 years of tight growth and regular flame tiger stripes," he says.

Meanwhile, back at Superior Water-Logged's headquarters in Ashland, an anxious tension fills the autumn air. Among its inventory, the company has identified three Lake Superior logs that hold promise for fiddlebacks. Mitchen has been waiting for this moment since he started retrieving here in 1989. "You never know what you're going to get until you crack it open," he says.

The company has brought in wood expert Mark Powers to do the honors. He sizes up a log much as a gem cutter determines how to get the best yield from a gemstone. Finally, he drives a wedge into a two-foot-long section of the log, breaking it first in half and then into billets. "Hallelujah!" Mitchen exclaims, as eight-inch sections of tightly grained maple are revealed. He picks one up, admiring its rare iridescence more closely. "It sparkles," he says.

First on the list to receive pieces of this rare wood are Nagyvary and Sleider. It may take months—even years—to determine whether this maple will provide wood for a modern-day Stradivarius. Even when good candidates are found, no one is sure exactly how to treat the precious wood to make it like that of a Stradivarius. But here at the Ashland mill, one thing is already apparent: these old, once forgotten logs are bringing an excitement to wood connoisseurs and conservationists alike that they never could attract before.

Based in Washington, D.C., Julie Wakefield wrote about medical imaging in June. Layne Kennedy last photographed wind turbines.

As Good As Gold?

NOT ALWAYS. MONEY IN AMERICA HAS GONE FROM CROPS TO BULLION TO GREENBACKS TO ELECTRONIC MARKERS—IGNITING POLITICAL AND ECONOMIC CRISES ALONG THE WAY

BY T.J. STILES

IT'S A TYPICAL FRIDAY FOR A TYPICAL American—and that means payday. Over her lunch hour, she makes a pilgrimage to the bank; on the screen of an automatic teller machine, she sees the reassuring numbers: her employer has deposited her wages into her checking account. She spends the rest of the hour paying her bills—settling some through the Internet, by authorizing deductions from her bank balance. Her employer has automatically subtracted her health-insurance premium, her retirement-plan contribution and her taxes.

In a few hours she has participated in numerous transactions involving thousands of dollars, yet she has not handled one slip of physical currency. She organizes her entire life around this day—and she never gives a thought to the invisibility of her money. A few numbers on a computer screen, a poorly printed ATM receipt and a computerized voice on the phone are all the evidence she needs that the money is there.

So what exactly *is* money? It's a question that has become harder to answer, as we use less and less actual cash. Maybe one place to go for a solution is 80 feet beneath the steel and concrete forest of Manhattan's financial district, inside the international gold vault. Maintained by the Federal Reserve Bank of New York, it contains the largest hoard of monetary gold on the planet. A quarter of the world's reserves lie there, stacked floor to ceiling, bar after very heavy bar, in dozens of locked cages according to country.

Impressive as this pile may be, it suffers from a serious problem: it really isn't money anymore. Today, we cannot walk into a store, plunk down a chunk of gold and buy something. A debit card will do, but not bullion. It is not, as the economists say, a generally accepted means of payment.

And those two little words, "generally accepted," hold the secret meaning of money—and how it has melted from some of the heaviest of metals to mere electronic markers. Money is not merely a measuring system for value; it is also a thing that everyone is

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After the 1929 crash, a Wall Street speculator sacrifices his roadster to generate cash.

willing to accept for payment for everything else, all the time.

But what happens when a large proportion of the public remains on the ledge, refusing to make that leap of faith? The answer is crisis—and just such a crisis dominated much of American history, shaping politics and tearing apart communities. The fight over how to define money created political parties, made and destroyed Presidential candidates and rang in depressions.

This long debate tells us a great deal about the nature of money, because at the center of the argument was the question of how abstract it should be. A substance intrinsically valuable, or an item we invent as needed? The issue dogged Americans for some 300 years, because we faced a critical problem: a drastic, ongoing shortage of cash.

Consider Gov. Thomas Dudley of Massachusetts Bay. In 1634 he met with two ambassadors from the Pequots, the colony's powerful Native American neighbors, who came to discuss reparations for the recent murder of an Englishman by the tribe. Dudley's demands: a few dozen furs and a large cash payment—specifically, some 2,400 feet of wampum.

Wampum—strings of shell beads—served an important ceremonial function among the Native American nations of the Northeast. And when the Indians began to ask for it as payment for their furs, it became almost as important to the colonists. Soon after Governor Dudley's talks with the Pequots, Massachusetts made wampum legal tender.

Wampum was not the colonists' first choice for cash. In the world they left behind, money was mostly gold and silver coin. But throughout the colonial era, the British government banned the export of coin across the Atlantic. Even when colonists began to acquire Spanish silver through trade with the West Indies,

CORBIS-BETTMANN; P. 106 LARRY GILPIN/TONY STONE IMAGES; PP. 106, 107 JACK VEAREY/TONY STONE IMAGES

much of it went straight to England to pay for imports. Colonists made a few attempts to establish their own mints, but London quickly quashed them. The result was an often catastrophic shortage of money.

"We were in the Years 1721 and 1722," declared the Pennsylvania legislature, "so effectually drained of our Coin . . . that the Inhabitants of every Degree were reduced to the greatest Straits; Debts could not be discharged, nor Payments be made; the Rents of Houses fell, many whereof were deserted; Artificers and Traders were obliged to quit the Country."

In desperation, the colonies began to invent money for themselves. At first, they made existing commodities the official standard. In South Carolina, rice, peas, beef and even pork were used as monetary commodities; Virginia began to set prices in terms of tobacco as early as 1619, and shortly afterward made it legal tender. The colony established warehouses where it stored bales of tobacco; it settled bills by paying out receipts for the leaf deposited there. Taxes, even salaries, were paid in these "tobacco notes," which circulated publicly and privately as a kind of paper money.

Some colonies turned to paper currency or bills of credit. Generally speaking, the issuing government would make the bills legal tender, set a terminal redemption date (usually five years or so) and establish a special tax to build a fund to pay off the notes in coin at that time.

In the Western world, legal-tender paper money (first issued by Massachusetts in 1690) was an American innovation. Despite plenty of problems, the coin-poor public loved it. In fact, one of the lesser-known provocations leading to the Revolution was an act of Parliament in 1764 that banned the issuance of paper currency in all the colonies (a ban had been issued for New England in 1751). Many colonists saw the law in the context of the Sugar Act, the Stamp Act, the Quartering Act and the Townshend duties—which seemed to be a determined program by Parliament to suppress American autonomy.

Once the colonies organized the Second Continental Congress in 1775, Americans got more paper money than they ever wanted. Congress tried to finance the war of independence by issuing notes called continentals. It pledged to print no more after the first batch—then proceeded to flood the economy with more than $200 million by 1780. These legal-tender bills became virtually worthless. In desperation, Congress turned to one of the wealthiest—and shrewdest—men in the new Republic, Robert Morris of Philadelphia.

Almost from the beginning, Morris served as the financial godfather of the Revolution. In early 1777, for example, right after George Washington won a great victory at Trenton, New Jersey, the general saw a chance to strike a second blow against the British—but many of his troops had

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Attempts by financier Jay Gould to corner the gold market led to panic in 1869.

reached the end of their terms of enlistment. Washington promised a $10 bounty to each man who stayed on for six more weeks; then he wrote a frantic appeal to Morris for the money. "I am up very early this morning to despatch a supply of $50,000 to your Excellency," Morris wrote back. The general scored another success at Princeton.

Morris accomplished a similar feat in 1781, during the critical Yorktown campaign. This time Washington was desperate for supplies. Morris mobilized his wealthy friends, pledging his personal fortune as security for purchases of flour, cattle and boats.

By the time Washington won that final victory of the war, Congress had named Morris the Superintendent of Finance. Once again, he put his own good credit to work as he rebuilt that of the government. At one point, he even circulated his own notes, backed by his personal wealth. His bills were considered as good as precious-metal coin in the marketplace (thanks to Morris' vast fortune).

But Morris had no intention of bankrolling the new nation. He persuaded the Continental Congress to begin construction of a financial infrastructure. In 1781 Congress established the Bank of North America—the first federally chartered bank on these shores. It made loans to Congress, to be redeemed at specific intervals, allowing Morris to anticipate revenues and maintain sufficient cash flow.

After the disastrous experience with continentals, the Founders got out of the legal-tender business. They wrote a prohibition on state-issued currency into the Constitution, and Congress rested content with minting gold and silver coins. Paper money was left to banks. Usually banks would take deposits in gold and silver coin (or "specie," to use the technical term) and make loans by issuing paper notes. The public paid each other with these privately printed bills, assuming they could be redeemed at the issuing bank for precious-metal coin (or cash—as in "cold, hard cash"). Banks multiplied the supply of money: they issued paper worth two or three times their specie reserves, since it was unlikely all their notes would be returned at once.

All this raised the abstraction of money to bewildering proportions. Gold and silver coin was still there at the heart of the system, tangible and real. But it tended to settle in the bellies of banks, which digested it and regurgitated paper notes. All kinds of notes. By 1860 there were no less than 1,562

GRANGER COLLECTION

state-charted banks, and almost every one distributed its own variety of bills.

When that private-enterprise paper hit the marketplace, it fluctuated in value depending on how easily the notes could get "real" money (that is, specie). A merchant might insist on steeply discounting a note, when taking it as payment, because of the issuing bank's reputation. Distance mattered too: the farther away the bank, the harder to return its notes for coin.

This diverse, ad hoc currency aroused distrust and distaste—a sentiment expressed most belligerently by Andrew Jackson. No one better expressed American belligerence itself, for that matter: he once killed a man in a duel, and he was undoubtedly the only President who took the oath of office with two bullets in his body and then had one of them removed (without anesthesia) while in office. In one of his most famous acts as President, he crushed the Second Bank of the United States, a federally chartered giant that towered over the nation's financial structure.

But Jackson hated the entire currency system. He saw paper bills as a lot of mysterious mumbo jumbo, and bankers as a bunch of unproductive thieves who lived by other men's sweat. In 1836 Jackson drew up the Specie Circular, which decreed that federal lands would be sold only for coin—not the banknotes used by most westward-marching migrants. When consumers rushed to get specie for their notes, banks went down like dominoes, ushering in a stark depression that lasted until 1843.

That crisis was merely a bonfire compared with the firestorm of the Civil War—a conflagration that consumed everything in its path, including the country's currency. As the military and financial situation worsened in 1861, panicked note holders rushed to banks and demanded gold. By December, banks had stopped redeeming their notes. With precious metals hoarded and hidden, paper money depreciated radically.

It fell to Congressman Elbridge G. Spaulding, a banker, to solve the crunch. He authored an act for a national paper currency that became known as legal-tenders, or, more commonly, greenbacks. After July 1, 1863, these notes were used for all debts except customs duties, and they could not be redeemed for specie.

The immensity of this innovation can easily be missed, as we look back from our specie-free society. But at the time it was stunning. Unlike virtually every other paper note in American history, the greenback did not represent an underlying commodity. It could not be redeemed in gold or silver—or tobacco, or wampum—then or in the future.

Probably the first thing the greenback purchased was outrage. "Gold and silver are the only true measure of value," one influential banker thundered. "These metals were prepared by the Almighty."

He took the oath of office with two bullets in his body—and had once killed a man in a duel.

"I prefer gold to paper money," agreed Senator John Sherman. "But there is no other resort. We must have money or a fractured Government." But critics found plenty of ammunition in a rather peculiar market in New York City that the greenback created, known as the Gold Room.

For the first time, gold had a price. The law recognized the greenback and the old gold dollar as equals, but in the Gold Room (officially established in 1864), traders exchanged the two kinds of money, paying extra greenbacks for the rarer gold. The market, in fact, was an economic necessity, since international purchases were made in the yellow metal,

The Wonder of Iron-13

Bathing in hot springs is very popular among the Japanese, who often drink the water from iron springs for their health.

Iron and Hot Springs

By Tomio Hirano

Japan is the world's foremost hot springs country with over 21,000 sources, including 2,600 hot springs resorts, because of its location on the volcanic rim of the Pacific. These springs are at least 77°F or have significant mineral content, solids of at least one gram in one kilogram of water.

Some springs are designated as iron springs, and they have over 20 milligrams of iron ions (Fe^{++} and Fe^{+++}). Iron springs can be divided into two types, iron carbonate springs and acid vitriol springs. The Ikaho Springs in Gunma Prefecture are famous for containing mainly iron (Fe^{++}) bicarbonate. The other type, those originating from active volcanoes, have strong acidic properties, such as the Fukushima Prefecture's Dake Hot Springs, which contain mainly iron (Fe^{++}) sulfate.

Our bodies contain about three grams of iron. Three quarters of this is in the hemoglobin of our red corpuscles. A shortage of iron leads to anemia. About 10 milligrams of iron are lost daily through urine and perspiration. There is usually about an equal intake in the form of food. A diet rich in iron is healthy, and drinking iron spring water is an effective remedy for anemia, although its unique taste can hardly be described as delightful. Perhaps the proverb, good medicine tastes bitter, applies here.

About the Author:
Tomio Hirano graduated from the Department of Technology at Doshisha University, and became a Doctor of Science at Tohoku University. His specialty is the geochemistry of hot springs, underground water, and hot water. He currently heads Kanagawa Prefecture's Hot Springs Areas Research Institute.

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while the domestic economy used paper money almost exclusively.

For Jay Gould, the market would be a hunting ground. In 1869 the famed financier and his friend and partner, James Fisk, Jr., had just made their mark on Wall Street by besting Cornelius Vanderbilt in a fight for the Erie Railroad. Now Gould led his friend to the Gold Room.

On the surface, Gould's plan was simple: he would corner the market. That is, he would create a general craze for gold by purchasing massive quantities and convincing brokers and the public that the price would keep climbing. As buyers joined the frenzy, the price of gold would shoot up.

The primary threat to Gould's scheme was the U.S. Treasury, the biggest player in the market. It could undercut the price of gold through its large sales of the specie it acquired through customs duties. So Gould spun a web of intrigue around the new President, Ulysses S. Grant. The financier bribed Grant's brother-in-law, Abel Corbin, to argue for a freeze on U.S. gold sales. Gould corrupted Daniel S. Butterfield, the assistant treasurer in New York, for inside information.

On June 15, 1869, Gould and Fisk lobbied Grant himself on a passage to Boston aboard one of Gould's steamships. "We went down to dinner about nine o'clock," Fisk recalled, "intending while we were there to have the thing pretty thoroughly talked up, and, if possible to relieve him of any idea of putting the price of gold down." They came in for a shock: Grant was not interested.

But Gould knew that perception was as important as reality in the markets, so he created the impression that Grant was solidly behind them. Apparently, Gould even set up an account for First Lady Julia Dent Grant. "Mr. Gould," Fisk later told Congress, "sold $500,000 of gold belonging to Mrs. Grant . . . leaving her a balance of about $27,000." In

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September, the price of the precious metal went up, thanks in part to the two financiers' purchases and shrewd use of the press. Desperate to drive the market still higher, the conspirators pressured Abel Corbin to send the President one last plea for a moratorium on Treasury gold sales.

Gould had gone too far. Grant, too, had heard the rumors of his own complicity; when Corbin's note interrupted a croquet game, Grant angrily ordered his wife to write back and tell Corbin, "My husband is very much annoyed with your speculations. You must close them as quick as you can!"

"Mr. Corbin, I am undone if that letter gets out," Gould said. "If you will remain in and take the chances of the market I will give you my check for $100,000." Then the mogul left for the Gold Room, where he bid the price to new heights.

Then, unknown to everyone—even his partners—Gould began selling the bulk of his gold. And for good reason: Grant quickly ordered his Treasury secretary to dump gold on the market to stop the craze. A sale of $4 million in government specie was all it took to shatter the confidence of speculators. The market crashed on September 24, 1869, a day immediately dubbed Black Friday. Fisk later summed up the disaster succinctly: it was "each man drag out his own corpse." Gould, however, strolled away, very much alive, with a rumored $11 million in profits.

Black Friday added to a growing sense that America's money had become too abstract, too detached from the physical and metaphorical weightiness of precious metals. Congress suffered from nagging worries that the greenback was somehow dishonest—that, with the war over, a proud nation should redeem its currency in gold. The debate had even permeated the impeachment trial of Andrew Johnson in 1868. Many Republican senators had been reluc-

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Personnel inside the international gold vault at the Federal Reserve Bank of New York, which stores more than 600,000 bars of bullion from 60 countries, tally up a shipment.

tant to convict him because his designated successor, Senator Benjamin Wade, was a "soft money" man who wanted to print more greenbacks.

But to cash-starved Westerners and Southerners, legal tenders meant relief. When the Supreme Court declared the legal-tender laws (and thus greenbacks for certain debts) unconstitutional in 1870, Grant won popular acclaim by adding two new appointments to the Court to overturn the decision in 1871.

The fight between hard money and soft money dominated politics, due to the continuing money shortage after the Civil War: in 1879 there were only $72 per person in existence. While hard-money men pleaded for the honesty of the gold standard, soft-money advocates believed that there just wasn't enough specie to keep up with economic expansion.

Such conditions led to the rise of the descriptively named Greenback party. It briefly proved to be one of the most successful third-party movements in history: it won a million votes in 1878, electing 14 Congressmen. Nevertheless, the nation went back on the gold standard in 1879. Then a strange thing happened: the debate suddenly ended. The former Greenbackers gave in to the idea that paper currency had to be backed up by precious metals. True, they still wanted to expand the money supply; but now they argued that silver should be added to gold as the specie basis of the currency—an idea called bimetallism. William Jennings Bryan, for example, won the Democratic nomination for the Presidency in 1896 with his "Cross of Gold" speech, which summed up Western and rural fury with Eastern gold-standard purists. But despite the intensity of the debate, the real war of ideas was over: the dollar, they agreed, had to be intrinsically valuable.

Ironically, money was simultaneously becoming more and more abstract in actual practice. The culprits were the banks, which spread rapidly into even rural areas after the Civil War. Banks, in fact, were becoming the medium of the medium of exchange, as the checking account began to replace actual notes.

Money was now largely a matter of ledger books, not stacks of gold or even paper notes. The establishment

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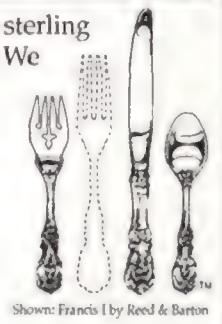

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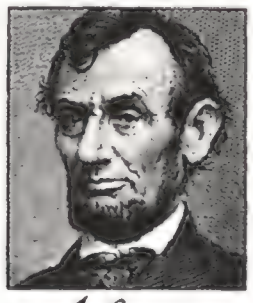

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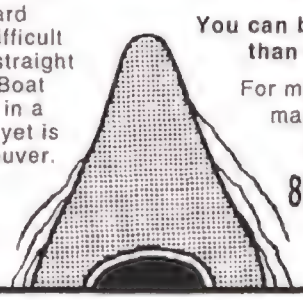

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of the Federal Reserve System (known as the Fed) in 1913 confirmed this trend. Its 12 regional banks held the reserve accounts for member institutions; when checks cleared between banks, the Fed would make a ledger entry, deducting one reserve account and crediting another.

The Fed also controlled the supply of paper currency: the new Federal Reserve note, the first version of the bills we use today. More importantly, the Fed could make it more or less costly for banks to expand their reserves and thus their loans. This system is still largely in place today.

But the cable that held the drifting supply of money to the deadweight of gold had not yet been cut. Each bank still had to maintain a fund for redeeming notes in specie; the amount of gold set an absolute limit on the number of dollars in circulation—as the nation would soon learn.

On October 24, 1929, the greatest financial panic in American history rolled across the economy like a tsunami, leaving behind a wrecked and desolate country. Endless debates have raged over the causes of the crisis, but the results were all too clear: the money supply simply shriveled. Frightened depositors emptied their accounts to get cash; frightened banks called in loans. For many, even Federal Reserve notes weren't good enough: they handed them over for gold, which they hoarded. By 1933 the money supply had shrunk by at least a quarter; more than 5,000 banks had come crashing down.

As Franklin Delano Roosevelt entered the White House that March, he realized that the currency had to be freed from the anchor of gold. Soon after taking the oath of office, he issued an extraordinary executive order that nationalized the nation's coin and bullion: gold was to be handed over to the Treasury, in return for Federal Reserve notes (which were more likely to circulate). With Congress's help, Roosevelt made it

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illegal to own gold (except for industrial and artistic purposes); he also stopped minting gold coins and redeeming paper dollars for gold.

But behind the scenes more subtle and much farther-reaching plans were being prepared. For all of the psychological importance of specie and Federal Reserve notes, the real job of making new money fell not to government printing presses but to the loan offices of banks.

In earlier times, consumers needed to trust in specie redemption before they would accept paper notes; now they had to trust in the durability of banks before they would make deposits, take out loans, or write and accept checks. So the federal government quietly poured a billion dollars

As a result of the New Deal reforms, American money is more abstract than ever.

into bank stocks and established the Federal Deposit Insurance Corporation (which reassured consumers that they would not lose their savings if a bank went belly-up).

As a result of the New Deal reforms, American money is more abstract than ever before. It also works better than it ever has. Since the end of the Great Depression, the United States has not suffered a single financial panic—a stretch of more than 60 years, the longest in history.

Most dollars today have no physical existence. Even ledger books began to disappear in the 1960s and '70s, replaced by computer records. The Federal Reserve System processes an average of $2.1 trillion each day through an electronic network known as Fedwire. Meanwhile, credit card companies, insurance companies,

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mortgage firms and retirement funds (among others) compete with banks to generate loans.

The gold standard has sunk without a trace in this vast and complex sea of financial institutions—but it did not immediately die off in 1933. Under the Bretton Woods accord of 1944, the value of the dollar was set at $35 per ounce of gold, but only dollars held by foreign officials could be redeemed for U.S. specie (most of which was, and is, kept at Fort Knox, Kentucky). At the gold vault under the Federal Reserve Bank of New York, countries could pay each other simply by shifting so many bars from one cage to another. But a severe drain on American gold reserves caused the United States to restrict and ultimately halt specie payments, leading to the end of the international gold standard in 1971.

Today, the New York gold vault sits mostly in silence. Although individual transactions are kept secret, those that occur are generally withdrawals, as nations sell bullion on the open market. A lot of its daily activity consists of visits by tourists—a fitting reminder that the vault is essentially a curiosity, a throwback to the age when Americans believed that money had to be something valuable in and of itself. Now money is largely a unit of account—it exists simply because we say it is there. And gold is just another asset like stocks, bonds or real estate—except it is less popular as an investment.

In American history, money has gone from tobacco to gold to greenbacks to ledger books to electrons. Today our institutionalized, interconnected economy resembles an electronic circuit, with money constantly flowing through it like an electric current. No, not *like* an electric current—it *is* an electric current, powering our globally wired world.

T.J. Stiles began the study of money and banking as part of his research for his forthcoming biography of Jesse James.

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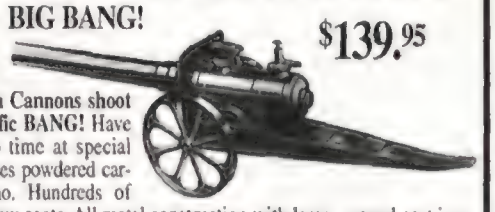

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THE LAST PAGE

A Fellow Can't Be Too Careful These Days

BY GERALD DUMAS

IT WAS AT ONE OF THOSE LARGE professional meetings that hundreds of people from all over the country attend. I checked in, found my nametag and applied it to the front of my jacket. Then I got a drink and bumped into my old friend Bob, whom I had last seen a week earlier. We shook hands, and that's when he caught me sneaking a look at his nametag.

"It's still Bob," said Bob. "What's the matter, are you losing it?"

I tried worming my way out of it. "Just checking to see if you still spelled it the same."

"Even backwards it would be Bob."

"I meant your last name," I said, without conviction.

Babe Ruth hardly remembered anyone's name, even some of his teammates'. If he thought you were older, he called you Pop. If younger, you were Kid. He didn't worry about it. But I get depressed if someone thinks I'm vague or befuddled. Naturally, I prefer to be thought of as quick-witted, razor-sharp, which is hard to pull off while I'm bending down to read my wife's nametag.

It's not only names, either. I verify all over the place. For instance, I'll never lock myself out of the house. My ritual, before going out the door, is to pat my pockets and yell: "Wallet! Keys!" I have to feel it and hear it. Once, a new cleaning lady, hearing my cry, ran to my wife and yelled: "Your husband wants you to bring him his wallet and keys right way!"

At the old-fashioned gas station I frequent, I always hop out and chat with Frank while he fills the tank. Frank thinks it's because I'm eager to trade jokes, but I'm really there to be sure he remembers to put the cap back on. In case I should forget the combination to my locker at the YMCA, I've penciled 16-34-2 (you don't think I'm giving you the real numbers, do you?) in tiny writing on the wall behind the bulletin board.

Maybe I go overboard on the confirmation game. But it's not like fretful people can't be happy. I've never heard anybody say, "Better sorry than safe."

It's like last month when my wife left me alone with a chicken I had to baste. I'm no cook, but I'm a fine baster, and I basted the heck out of that chicken and then I went off to the dentist. As I settled into the chair, I began to wonder if I had turned the oven off. Just before they began to work on me, I stood up and put on my coat. "I have a chicken in the oven," I said. As I left, a young woman called out after me, "We know where the chicken is, and it's not in the oven."

Look, if Babe Ruth and I were both airline pilots, who would you rather fly with—the carefree Sultan of Swat, or the careful King of Concern? Believe me, I have given this a lot of thought, and if you want my advice, I wouldn't fly with either of us. I'd take the train.

LANE YERKES

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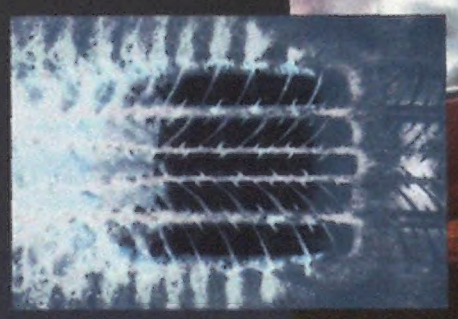

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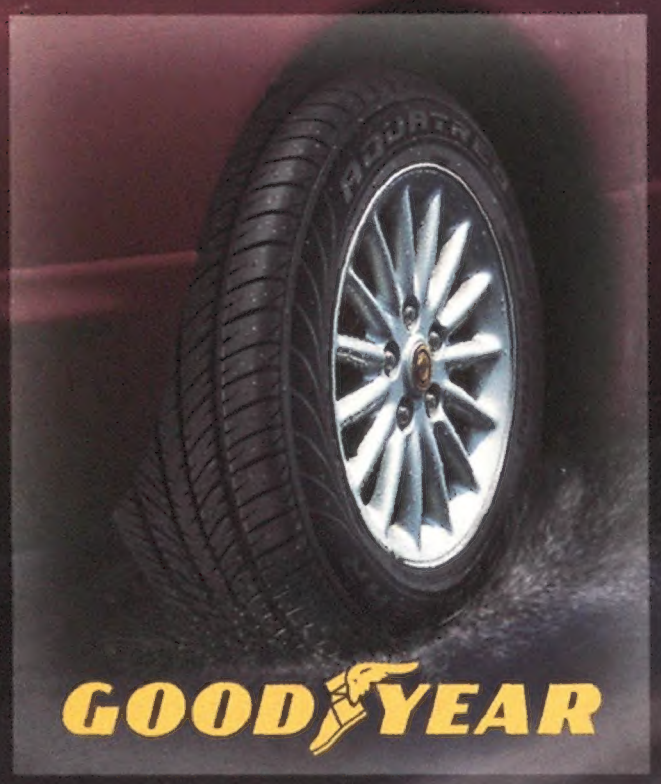

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